State of Utah

Department of Environmental Quality

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

DAQ-080-06

UTAH AIR QUALITY BOARD MEETING

DRAFT AGENDA

Wednesday, December 6, 2006
1:30 p.m.

168 North 1950 West (Bldg #2) Room 101

I. Call-to-Order.

II. Date of the Next Air Quality Board Meeting: January 3, 2006.

III. Approval of the Minutes for November's Board Meeting.

IV. Propose for Public Comment: Amend R307-120, General Requirements: Tax Exemption for Air and Water Pollution Control Equipment. Presented by Jan Miller.

V. Variance Request-Brigham Young University (BYU), Deseret Towers Demolition. Presented by Bowen Call.

VI. Sierra Club Requests for Agency Action (Sevier Power and IPP) - Information and Scheduling. Presented by Fred Nelson

VII. Informational Items
A. Compliance. Presented by Bryce Bird.
B. HAPS. Presented by Robert Ford.
C. Monitoring. Presented by Bob Dalley.

In compliance with the American with Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Charlene Lamph, Office of Human Resources at (801) 536-4413 (TDD 536-4414).

Pre-Board Meeting
IGCC
November 1, 2006

Mr. Stephens stated that there are some sensitivities with the subject of IGCC in light of the ongoing litigation. Mr Olsen stated but the Air Quality Board has asked for an overview of the IGCC technology and he would provide that in the following presentation. See attachment #1.

The Slides are from two basic sources, the EPA and EPRI, the Electric Power Research Institute or EPRI, a reputable research institute. In the spirit of full disclosure, EPRI is funded by the electric power industry. Mr Olsen stated that we have taken factual information and tried to stay away from opinion types of information.

Mr. Sprott would like suggestions on what needs to be done in the future regarding IGCC.

Mr. Wessman stated that there needs to be more studies. This process is a big commitment.

UTAH AIR QUALITY BOARD MEETING
November 1, 2006

DRAFT MINUTES

I. Call to Order

John Veranth called the meeting to order at 1:33 PM.

Board members present

Nan Bunker, Jerry Grover, Jim Horrocks, Dianne R Nielson, Wayne Samuelson, Joann Seghini, Don Sorensen, Ernest Wessman, Scott Lawson and John Veranth.

Executive Secretary: Cheryl Heying acting for Rick Sprott.

Board members excused:

Stead Burwell

Mr. Sprott stated that the Jeff Dean, compliance manager for the Division of Air Quality passed away on September 28, 2006. Jeff was innovative and made a significant contribution to the environmental quality of Utah. We lost a leader and gained a legacy.

II. Date of the Next Air Quality Board Meeting

December 6, 2006 will be set as a tentative date for the next Board meeting.

III. Approval of the Minutes for September 6, 2006 Board Meeting

- Don Sorensen made the motion to approve September 6, 2006 minutes. JoAnn Seghini seconded and the Board approved unanimously.

IV. Appointment of Temporary Executive Secretary. Presented by Dianne R. Nielson.

Ms. Nielson stated that in order to insure an efficient way of doing business we need to consider having an acting Executive Secretary only in rare occasions when the Executive Secretary is unavailable. We would like to ask the Board to appoint Cheryl Heying as the acting Executive Secretary. Mr. Sprott stated that the duties would include permitting actions, signing legal documents, including smoke management.

- Mr. Wessman made the motion to appoint Cheryl Heying the acting Executive Secretary of the Air Quality Board. Ms. Bunker seconded and the Board approved unanimously.

V. Appointment of Hearing Officer for A-1 Restoration. Presented by Christian Stephens.

Mr. Stephens stated that back in June the Executive Secretary issued a notice of violation to A-1 Restoration. A hearing has been requested by A-1 and we request that the Board appoint a hearing officer. Mr. Wessman volunteered to be the hearing officer.

- Ms. Bunker made the motion to appoint Ernest Wessman as hearing Officer for A-1 restoration. Mr. Grover seconded and the Board approved unanimously.

VI. Propose for Public Comment: Amend R307-210, Stationary Sources; Amend R307-220, Emission Standards: Plan for Designated Facilities and Add New Section IV, Plan for Mercury Emissions at Coal-Fired Electric Generating Units; Add New Rule R307-224, Mercury Emission Standards: Coal-Fired Electric Generating Units; and Add New Rule R307-424, Permits: Mercury Requirements for Electric Generating Units. Presented by Bill Reiss.

Mr. Reiss started with background on May 18, 2005 EPA released its Clean Air Mercury Rule (CAMR) to address airborne mercury emissions from Electric Generating Units (EGUs.) The rule generally applies to any stationary coal-fired boiler, serving a generator with nameplate capacity of more than 25 megawatts.

The CAMR program will take place in two phases, reflecting a two-tiered reduction in nation-wide mercury emissions from an estimated 48 tons in 1999. Phase one will begin in 2010 and run through 2017. Under Phase one, EPA will issue a total number of mercury allowances equal to 38 tons. Phase two begins in 2018. Under Phase two, EPA will reduce the number of allowances to a corresponding nationwide emission rate of 15 tons per year.

Utah's allowances under the CAMR will be 0.506 tons per year in Phase one and 0.200 tons per year in phase two. As a point of comparison, EPA estimates that EGUs in Utah emitted 0.142 tons of mercury in 1999. Utah's budgets do not include emissions from Deseret Generation and Transmission (the Bonanza plant.) Rather, the Ute Indian Tribe has jurisdiction over that facility. The Utes are also given a budget under the CAMR.

EPA has proposed a "model rule" to satisfy the compliance element of the Designated Facilities Plan. The model rule is essentially a national cap and trade program. Sources within each state or tribal area could exceed this budget if they were to secure enough extra allowances to cover the overage.

States and tribes are free to participate in this national trading program or not. Should they choose not to take part, the DFP would have to outline alternative means of keeping the mercury emissions from these pre-existing facilities within the budgets allocated to

that state or tribe. Presumably, this alternative means would involve emission limits and, like the model trading rule, would include provisions for monitoring, recordkeeping and reporting. Today's Proposal:

Utah Division of Air Quality (DAQ) has drafted a suite of rules intended to implement a comprehensive strategy to address mercury emissions from EGUs.

This strategy includes participation in EPA's nationwide cap and trade program, with overall goals of reducing mercury emissions from an estimated 48 tons per year nationwide to 38 tons per year by 2010 and 15 tons per year by 2018.

It also includes state-only provisions which establish minimum performance criteria for existing EGUs and require offset for potential increases in mercury emissions.

The proposal is reflected in four separate rules as well as the Designated Facilities Plan. Each of these has been included in the packet, and a brief description is provided below:

R307-224 "Mercury Emission Standards: Coal-Fired Electric Generating Units" In this rule, Utah is proposing to incorporate by reference much of EPA's model rule which establishes a cap and trade program to ensure that mercury emissions from EGUs will remain in compliance with the emission budgets established for the State of Utah. Some parts of the model rule have specifically not been incorporated by reference.

"Designated Facilities Plan for Mercury (Hg) Emissions at Coal Fired Electric Generating Units" This Plan (or DFP) is required under 40 CFR 60.24 to address mercury emissions at qualifying coal-fired electric generating units that were in existence prior to EPA's new regulations under the New Source Performance Standards. Those parts of the model rule that have specifically not been incorporated by reference in R307-224 are addressed here in the DFP.

R307-220 "Emission Standards: Plan for Designated Facilities" In this rule, Utah incorporates by reference the entirety of its Designated Facilities Plan. The DFP includes sections covering: Municipal Solid Waste Landfills (Section I), Hospital, Medical, Infectious Waste Incinerators (Section II), Small Municipal Waste Combustion Units (Section III), and now at R307-220-5 a new "Section IV, Coal-Fired Electric Generating Units"

R307-210 "Stationary Sources" In this rule, Utah incorporates by reference all of 40 CFR 60, Standards of Performance for New Stationary Sources. Much of EPA's federal rulemaking with regard to mercury emissions from EGUs appears in part 60, and not all of it is contained in the Model Rule (which is subpart HHHH.) Subpart HHHH is specifically not incorporated by R307-210.

R307-424 "Permits: Mercury Requirements for Electric Generating Units" In this rule, Utah seeks to establish state-wide requirements for mercury emissions at coal-fired electric generating units. As proposed, the rule contains two distinct provisions: 1) a requirement that any existing EGU exceeding 1,500 MMbtu/hr (heat input capacity) meet certain emission rates or control efficiencies, and 2) an offset requirement for permitting increases in mercury emissions.

Mr. Reiss stated that the staff recommends that the Utah Air Quality Board propose the attached rules and the Designated Facilities Plan for public comment.

- Ms. Seghini made the motion to Propose for Public Comment: Amend R307-210, Stationary Sources; Amend R307-220, Emission Standards: Plan for Designated Facilities and Add New Section IV, Plan for Mercury Emissions at Coal-Fired Electric Generating Units; Add New Rule R307-224, Mercury Emission Standards: Coal-Fired Electric Generating Units; and Add New Rule R307-424, Permits: Mercury Requirements for Electric Generating Units to include amendment. Mr. Samuelson seconded and the Board approved unanimously.

VII. Ballot Transportation Proposition #3-Presented by LaVar Webb.

Mr. Webb provided information about propostion #3. See attachment #2. No motion was made regarding this issue.

VIII. Propose for Public Comment: New State Implementation Plan Section XXII, Interstate Transport, and R307-110-36. Presented by Jan Miller.

Ms. Miller stated that When a new National Ambient Air Quality Standard (NAAQS) is promulgated, the Clean Air Act requires states to submit a State Implementation Plan (SIP) under section 110(a)(2)(D)(i) to address interstate transport of emissions that would affect nonattainment and maintenance areas in neighboring states.

The NAAQS for PM2.5 and 8-hour ozone were promulgated in 1997, and EPA was sued for failure to require 110(a)(2)(D) SIPs to address those standards. EPA is now under a consent decree to issue a Federal Implementation Plan (FIP) for any state whose SIP is not submitted to EPA and approved by May 25, 2007.

EPA issued guidance to states on August 15, 2006, with supplemental information supplied on September 11. EPA asks that states submit their SIPs to EPA by November 25, 2006, in order that EPA has time to review and approve them before the deadline.

Note that this SIP is different from visibility and regional haze SIPs. This SIP is focused on demonstrating that Utah's regulation of air quality does not interfere with other states' regulation of their nonattainment and maintenance areas for 8-hour ozone or PM2.5, or with their implementation of the prevention of significant deterioration (PSD) or visibility programs. By contrast, SIPs for visibility and regional haze are required to protect visibility in federally-designated Class I areas in Utah and other states. EPA Region 8, including their Regional Counsel's office, has reviewed a draft of this SIP. Their recommendations are included in this draft.

Ms. Miller stated that the staff recommends that the attached drafts of R307-110-36 and SIP Section XXII, Interstate Transport, be proposed for public comment.

- Mr. Sorensen made the motion to Propose for Public Comment: New State Implementation Plan Section XXII, Interstate Transport, and R307-110-36. Ms. Bunker seconded and the Board approved unanimously.

IX. Propose for Public Comment: R307-214-2, Incorporate by Reference Updates to Various Subparts of 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAPS), MACT Standards. Presented by Eileen Brennan.

Ms. Brennan stated that The National Emission Standards for Hazardous Air Pollutants (NESHAPS) are federal rules that regulate hazardous air pollutants (HAPs) and implement Section 112 of the Clean Air Act (CAA). These standards are also commonly referred to as Maximum Achievable Control Technology (MACT) standards, and are located in 40 CFR Part 63.

The 1990 CAA amendments required the EPA to list source categories to be regulated by MACT standards and a schedule for promulgation of the standards. These source categories and schedules have been published, and 101 MACT standards have been promulgated. Under R307-214-2, the Division has adopted 94 of the MACTs in 40 CFR 63, and has chosen not to adopt seven of the MACTs

The Division committed to adopting, implementing, and enforcing all applicable MACT standards in the Operating Permit Program submittal to EPA in April 1994. The Division demonstrated the resources necessary to carry out this commitment, and EPA approved the Operating Permit Program in part based upon this demonstration. As EPA promulgates new standards, the Division proposes the adoption of those standards that are potentially applicable to Utah sources.

By updating our rule, the State will ensure the enforcement of the most current versions of the MACTs, and will maintain primacy over administration of these standards on Utah sources. This will be consistent with the historical approach taken by the Department of Environmental Quality, and will simplify procedures required of sources.

Ms. Brennan stated that the staff recommends the MACT rule be proposed for public comment. The proposed text for the modification to R307 214 2 is attached for your review.

- Mr. Wessman made the motion to Propose for Public Comment: R307-214-2, Incorporate by Reference Updates to Various Subparts of 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants

(NESHAPS), MACT Standards. With modification to the text Mr. Horrocks seconded and the Board approved unanimously.

X. Informational Items

A. PM Standard Update. Presented by Mat Carlile and Bill Reiss.

Mr. Carlile stated that on September 21, 2006 EPA issued its final rule setting standards for particle matter. The final rule addresses two categories of particle matter, fine particles or PM2.5 and inhalable coarse particles or PM10. EPA is strengthening the 24-hour PM2.5 standard from 65 micrograms per cubic meter to 35 micrograms per cubic meter, and retaining the current annual PM2.5 standard of 15 micrograms per cubic meter. The EPA is also retaining the existing 24-hour PM10 standard of 150 micrograms per cubic meter; however, it is revoking the annual PM10 standard. The new standards will become effective on December 18, 2006. We reviewed data from our existing PM2.5 monitoring network to determine the impact of the new 24-hour PM2.5 standard. Looking specifically at our data from 2003 through 2005 we determined that 12 out of the 17 monitors in Utah would have violated the new standard during that period. We have put together a map that shows the potential nonattainment areas of the revised 24-hour PM2.5 standard, based on EPA's default designation boundaries of Metropolitan Statistical Areas. As with the initial PM2.5 designations, it is our intent to propose any nonattainment boundaries be based on scientific data and not solely on political boundaries. Utah's method addresses terrain, actual pollution, and meteorology. In addition, it uses townships rather than entire counties to better define the real areas violating the standard. This results in areas far smaller than the EPA default boundaries. This is an example of Utah's approach. There is an implementation schedule for the revised 24-hour PM2.5 standard. This will be the timeframe for implementation unless the courts stay this rule.

B. Compliance. Presented by Bryce Bird.

C. HAPS. Presented by Robert Ford.

D. Monitoring. Presented by Bob Dalley.

Mr. Dalley updated the Board on the latest air monitoring.

Meeting adjourned 3:10 PM.

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DAQ-081-06

MEMORANDUM

TO: Air Quality Board

THROUGH: Richard W. Sprott, Executive Secretary

FROM: Jan Miller, Rules Coordinator

DATE: November 17, 2006

SUBJECT: PROPOSE FOR PUBLIC COMMENT: Amend R307-120, General Requirements: Tax Exemption for Air and Water Pollution Control Equipment.

In the early 1970s, when the Legislature decided to provide a sales tax credit for pollution control equipment, the entire program was written into Title 19, Chapter 2, the Air Conservation Act, even though it applied to water pollution controls as well as air pollution controls. Since that time, the Division of Water Quality has administered their pollution control credits through R307-120, which is an air quality rule. Whenever the rule has been revised, the two divisions have worked together in making the amendments.

Now the Division of Water Quality would like to write its own rule. The two divisions are again working together in removing references to water pollution and the Water Quality Board from R307-120, and ensuring that their new rule and our changes become effective on the same date. Some grammatical changes also are being made now.

The attached changes in the text have been reviewed by the Division of Water Quality.

Staff Recommendation: Staff recommends that amendments to R307-120 be proposed for public comment. A copy of the proposal is attached.

R307. Environmental Quality, Air Quality.
R307-120. General Requirements: Tax Exemption for Air [~~and Water~~]Pollution Control Equipment.
R307-120-1. Application.

Application for certification shall be made on the form[~~s~~] provided by the [~~State Department of Environmental~~]Division of Air Quality, and shall include all information requested thereon and such additional reasonably necessary information as is requested by the executive secretary of the Air Quality Board[~~ or the executive secretary of the Water Quality Board~~].

R307-120-2. Eligibility for Certification.

Certification shall be made only for taxpayers who are owners, operators (under a lease) or contract purchasers of a trade or business that utilizes Utah property with a pollution control facility to prevent or minimize air pollution.

R307-120-3. Review Period.

Date of filing shall be date of receipt of the final item of information requested and this filing date shall initiate the 120-day review period.

R307-120-4. Conditions for Eligibility.

(1) All materials, equipment and structures (or part thereof) purchased, leased or otherwise procured and services utilized for construction or installation in an[~~ water or~~] air pollution control facility shall be eligible for certification, provided:

(a) such materials, equipment, structures (or part thereof), and services installed, constructed, or acquired result in a demonstrated reduction of pollutant discharges or emission pollutant levels, and

(b) the primary purpose of such materials, equipment, structures (or part thereof), and services is preventing, controlling, reducing, or disposing of [~~water or ~~]air pollution.

(2) The above includes expenditures [~~which~~]that reduce the amount of pollutants produced as well as expenditures [~~which~~]that result in removal of pollutants from waste streams. The materials, equipment, structures (or part thereof), and services that are necessary for the proper functioning of air [~~or water ~~]pollution control facilities meeting the requirements of (1)(a) and (b) above, including equipment required for compliance monitoring, shall be eligible for certification.

R307-120-5. Limitations on Certification.

Applications for certification shall be certified by the executive secretary of the [~~Air Quality~~]Board[~~ or the executive secretary of the Water Quality Board~~] after consultation with the State Tax Commission and only if:

(1) [~~Air Quality.~~

~~(a)~~] the air pollution control facility in question has been reviewed and approved by the executive secretary of the [~~Air Quality~~]Board for those air pollution sources needing review in accordance with R307-401, or

([~~b~~]2) the air pollution control facilities installed, constructed, or acquired are the result of the requirements of these rules (permits by rule) or the State Implementation Plan.[

~~(2) Water Quality.~~

~~(a) plans for the water pollution control facility in question require review and approval by the Water Quality Board and have been so approved, or~~

~~(b) the water pollution control facility is specifically required by the Water Quality Board, including facilities constructed for pretreatment of wastes prior to discharge to a public sewerage system in accordance with R317-8-8.1, but excluding facilities which are permitted by rule under R317-6-6.2 (Ground Water Discharge Permit by Rule) unless required to obtain an individual permit by the Water Quality Board, or~~

~~(c) the water pollution control facility is required and permitted by another statutory board within the Department of Environmental Quality, or~~

~~(d) the water pollution control facility eliminates or reduces the discharge of pollutants which would be regulated by the Water Quality Board, if such pollutants were discharged.~~]

R307-120-6. Exemptions from Certification.

The following items are specifically not eligible for certification:

(1) materials and supplies used in the normal operation or maintenance of the [~~water or~~]air pollution control facilities;

(2) materials, equipment, and services used to monitor ambient air[~~ or water~~], unless required for a permit or approval from the Board[~~a statutory board within the Department of Environmental Quality~~];

(3) [~~materials, equipment, and services for collection, treatment, and disposal of human wastes, unless the primary~~

~~purpose of such materials, equipment and services is the treatment of industrial wastes;~~

~~(4) materials, equipment and services used in removal, treatment, or disposal of pollutants from contaminated ground water, if the applicant caused the ground water contamination by failing to comply with applicable permits, approvals, rules, or standards existing at the time the contamination occurred; and~~

~~(5)~~]air conditioners.

R307-120-7. Duty to Issue Certification.

Upon determination that facilities described in any application under R307-120-1 satisfy the requirements of these rules and Sections 19-2-123 through 19-2-127 the executive secretary of the [~~Air Quality~~]Board [~~or the executive secretary of the Water Quality Board~~]shall issue a certification of pollution control facility to the applicant.

R307-120-8. Appeal and Revocation.

(1) A decision of the executive secretary of the [~~Air Quality~~]Board may be reviewed by filing a Request for Agency Action as provided in R307-103-3.[~~A decision of the executive secretary of the Water Quality Board may be reviewed by filing a Request for Agency Action as provided in the administrative rules for Water Quality, R317.~~]

(2) Revocation of prior certification shall be made for any of the circumstances prescribed in Section 19-2-126, after consultation with the State Tax Commission.

KEY: air pollution, tax exemptions, equipment[*]
Date of Enactment or Last Substantive Amendment: [~~December 7, 2000~~]2007
Notice of Continuation: March 26, 2002
Authorizing, and Implemented or Interpreted Law: 19-2-123, 19-2-124; 19-2-125; 19-2-126; 19-2-127

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MEMORANDUM

DAQH-0854-06

TO: Utah Air Quality Board

FROM: Richard W. Sprott, Executive Secretary

DATE: November 22, 2006

SUBJECT: Variance Request – Brigham Young University (BYU), Deseret Towers Demolition

This variance request is to give BYU and their contractor relief from the fugitive dust rules during the implosion of Deseret Towers buildings V and W using explosive methods for the implosion.

Review of the variance request submitted by email on November 20, 2006 noted the following concerns.

1) The variance was submitted on November 20, 2006 which was not 30 days prior to the scheduled Air Quality Board meeting date of December 6, 2006. As a result, staff have had just a few hours to review and make comments on the proposal and very little time to address any of the noted deficiencies with BYU or the contractors who will be doing the work.
2) The source has indicated that "there is no practicable means known or available for the adequate prevention, abatement or control of the air pollution involved." Staff concur that it is impossible to contain dust resulting from an implosion, however it is the general opinion of the staff that using normal demolition procedures that are common to the area would result in less fugitive dust emissions. By normal demolition practices we mean using heavy equipment to demolish the building piece by piece while implementing an approved fugitive dust control plan.
3) Under item #5 on the request form, the specific rules that will be impacted are not given. The rules that are likely to be impacted are R307-309-5 and R307-309-8 which deal with fugitive dust opacity and fugitive dust relating to construction and demolition activities.
4) Item #6 indicates that the variance will be for 20 minutes. Staff believe that the dust

episode may last much longer than this period depending on numerous factors including weather conditions, building construction materials and method of implosion.

5) Item #7 relates to hardship and the source has indicated that noise of the demolition would disrupt the students. The staff believes that this is not a major concern. The clean up of the materials and removal of the debris will likely be just as noisy as normal demolition as it will be the same or similar equipment used to process the building debris whether the building is demolished using explosives or heavy equipment.
6) Item #8 required that alternatives be listed in lieu of a variance. There were no alternatives listed and the staff knows that there are alternatives available such as using heavy equipment, ball and crane, etc. The source also did not indicate any possible scenarios for controlling the potential dust from the project.
7) Item #9 indicates that the only advantage to be gained from using the variance will be that the students will have less disruption. No disadvantages were listed.
8) Item #10 asks for how the emissions will be reduced during the period of the variance. The method provided is the use of street sweepers. Street sweepers are not a preventative measure to control fugitive dust, rather they would be used in remediation of the dust after the implosion was completed and are limited to cleaning roads and other paved surfaces. Preventative methods could include using water cannons or some other method of dust suppression to try and control the dust or to wet the material sufficiently prior to implosion to minimize the extent of the dust episode.
9) Item #12 requires emissions data for the activity in a non-attainment area. No data or calculations were provided.
10) BYU also submitted an Implosion Monitoring report from Iowa State University Knapp & Storms Dormitories demolition. While this report addresses the air monitoring during the implosion of the buildings, there is no information about the buildings or how they compare to the Deseret Tower builds to be demolished at BYU. Without comparative information it is impossible to make any correlations between the two projects.

Recommendations:

It is the recommendation of the staff that the variance request submitted by BYU on November 20, 2006 along with the attached report submitted on November 22, 2006, not be approved. The applicant has failed to provide a justifiable reason for the use of implosion and the subsequent dust episode over the use of more traditional means of demolition for a building of this size and type. The applicant has also failed to demonstrate any methods that will be used to mitigate the potential dust episode or to provide any data on the impact on the National Ambient Air Quality Standards due to the use of the variance and the associated dust episode. It should also be noted that this variance comprises the demolition of only two of the seven buildings. If the rest of the buildings are to be demolished in the same fashion then those facts should be considered as well. Further submittals from BYU may be able to correct some of the listed concerns.

Attachments: Variance Request, Asbestos Survey Reports, Iowa State Study

VARIANCE REQUEST

STATE OF UTAH
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
(801) 536-4000

PURPOSE: This form is to be used by any entity that is requesting a variance from either the state air rules (R307 series) or an air permit requirement (permit being either an Operating Permit or an Approval Order). See Utah Code 19-2-113 or Utah Administrative Code R307-102-4

INSTRUCTIONS: Complete each item below; each item must be addressed. Use additional pages if necessary. If there is a change in any of the information listed below, report the changes to the Utah Division of Air Quality immediately. You will be notified of the date, place, and time of the hearing or the determination made by the Executive Secretary.

Submit form to: **Executive Secretary**
Utah Division of Air Quality
150 North 1950 West
PO Box 144820
Salt Lake City, Utah, 84114-4820
Phone: 801-536-4000

BYU
Business Name

Street Address (Location of Business)

P.O. Box 28106
Mailing Address

PROVO UT
City **County**

PROVO UT
City **State**

84602
Zip Code

84602
Zip Code

~~CFO~~ CRAIG BARLOW
Contact - Name of the person authorized to receive notices

(801) 422-5434
Contact Telephone Number

Applicant is:
( ) **Individual**
( ) **Partnership**
( ) **Corporation**
( ) **Government**
(X) **Other Entity**

List names and addresses of all partners, officers, or other persons in control.

1. (X) Initial Variance ( ) Renewal

2. The purpose of variance request (check one):

   a. (X) no practicable means known or available for the adequate prevention, abatement, or control of the air pollution involved.

   b. ( ) compliance with the requirements from which variance is sought will require that measures, because of their extent of cost, must be spread over a long period of time.

   c. (X) to relieve or prevent hardship of a kind other than provided for in 2.a or 2.b.

3. Describe the business or activity for which the variance is requested. List all past, present, and future businesses and activities.

HIGHER EDUCATION - PRIVATE INSTITUTION

4. Describe the emission unit or process equipment or other units/equipment involved in the request.

NONE

5. State the rules or permit conditions (identify whether Approval Order or Title V) from which the applicant seeks relief.

VISIBLE AIR EMISSIONS (ONE DUST CLOUD VERSUS A LOT OF DUST (SAME AMOUNT) OVER A LONGER PERIOD OF TIME.)

6. State the specific time period(s) for which the variance is requested.

DEC 20, 2006 FOR TWENTY MINUTES.

7. State why compliance with the rule or approval order from which variance is sought would produce serious hardship without equal or greater benefits to the public. If financial hardship, include itemized and total costs of compliance.

NOISE CAUSED BY MECHANICAL DEMOLITION WOULD DISRUPT STUDENTS STUDYING, ESPECIALLY FOR FINALS. DEMOLITION IS IN THE MIDDLE OF 5 OTHER RESIDENCE HIGH RISE DORMITORIES.

8. List all possible alternatives in lieu of obtaining a variance. Discuss the advantages and disadvantages of each alternative. A cost estimate for each alternative must be included.

NONE

9. State the advantages and disadvantages to nearby residents if the variance is granted.

~~THE~~ STUDENTS WILL BE ~~ABLE~~ TO PREPARE FOR FINALS WITH MINIMAL DISRUPTION, AND CONTINUE WITH THEIR STUDIES.

10. State how the applicant will reduce excess emissions to the maximum extent feasible during the period the variance is in effect.

STREET CLEANERS

11. State the facts showing why operations under such variance are not likely to cause a nuisance, as defined in 76-10-803, Utah Code Annotated.

IT WOULD BE MORE OF A NUISANCE TO MECHANICALLY DEMOLISH BUILDINGS.

12. The source is located in: ? a non-attainment area ? ~~an attainment area~~

a. If located in a non-attainment area, will emissions resulting from approval of the variance cause a new violation of the National Ambient Air Quality Standards? Include all supporting data and calculations, such as emission estimates and modeling data. Give the exact location of the activity or business for which variance is sought.

b. If located in an attainment area, give the exact location of the activity or business for which variance is sought. Will emissions resulting from the approval of the variance cause a new violation of the National Ambient Air Quality Standards? Address the impact on increment consumption for the area and also address the possible impact on Class I areas.

N/A

13. Is the variance request considered an emergency situation? ( ) Yes (X) No

If yes, explain in detail.

14. Are other regulatory agencies or permit authorities involved in the variance request?
( ) Yes (X) No

If yes, state the agency name(s), contact person(s), phone number(s), and reason for their involvement.

C Barnes
Signature

11/28/06
Date

CRAIG BARNES
Name

REST DIR CONSTRUCTION
Title

EXCESS EMISSIONS CALCULATIONS

Business Name: _____

The following emission information must be provided by the applicant and filed with the variance application. Include a description of the methodology used to calculate emissions.

EQUIPMENT DESCRIPTION	AIR CONTAMINANT	EMISSION LIMIT	ACTUAL EMISSIONS[1]	EXCESS EMISSIONS[1]	EXCESS EMISSIONS FOR PERIOD OF VARIANCE[2]

[1] Express actual emissions and excess emissions in units of pounds per hour

[2] Express total excess emissions for period of variance in pounds per hour or tons per year

Utah!
Where ideas connect
Department of Environmental Quality
Division of Air Quality

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536-4094

MEMORANDUM

Tuesday Meet w/ CDI
We need to propose how
to Contain dust Control.
Megan - us } for Sam work
Corey Johnson }

TO: Staff

FROM: Richard W. Sprott
Director

DATE: February 21, 2003

SUBJECT: Variance Procedures

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1. In order to clarify how the Division will process requests for variance, the information below is provided. The actual statute and rule language are attached for your use as well. Should you have any questions, please see your manager.

2. Any person who owns or is in control of any plant, building, etc. may apply to the Air Quality Board (the Board) for a variance from state air quality rules or a permit condition. The Board may grant a variance request providing that the variance does not cause a violation of the Clean Air Act or associated federal regulations. The Board does not have the authority to grant a variance to federal regulations.

3. VARIANCE PROCEDURES:

    a. The party requesting a variance must complete a Variance Request Form (attached) and submit the completed form to the Executive Secretary. The completed form should be submitted at least 30 days prior to a scheduled board meeting to allow sufficient time for public notice and staff review of the request. Exceptions to this time frame may be considered on a case-by-case basis taking into account the urgency of the request, the nature of the impact both to the public and to the source, and on the complexity of the request.

b. The Air Standards Branch manager and Permitting Branch manager, following a review of the purpose for the request, will assign the request to the appropriate branch. Should the request relate to the Planning Branch, the Planning Branch manager will also be consulted. The request will then be assigned to appropriate staff for review and to make a recommendation concerning the Division's position regarding the variance. Due to normal timing on requests, this review must be accomplished as expeditiously as possible.

c. Coordination with the Planning Branch for any variance that will result in an emissions increase will be necessary to assure there is no violation of the National Ambient Air Quality Standards (NAAQS).

d. The branch that is handling the review process will keep the other branch managers and appropriate staff members informed about the review process and recommendations and solicit input and comments from the branches. The goal is to have a Division consensus on the recommendations when the variance request is presented to the Board. The board memo should be e-mailed to each branch manager for review and comment by the staff member preparing the memo before being included in the board mailing.

e. Following review and development of recommendations, the variance request will be put on the Board's agenda.

    1) The Executive Secretary will provide appropriate information to the Board prior to the board meeting, including a copy of the variance request and a memo outlining the staff review and recommendation. Staff will assure that the requesting source is made aware of the board meeting time and place and that the source will be expected to make a brief presentation to the board on the request.

    2) The individual that is assigned to review the request will prepare a notice for publication in a local paper as well as the SL Tribune and Deseret News (Newspaper Agency Corp.). The notice will outline the request and indicate the date, time and place of the board meeting that will hear the request and indicate that we will accept comment through the date of the board meeting and the Board takes final action on the request. This notice should be published at least 10 days prior to the board meeting; it should coincide with the mailing of the board package.

f. The Board chairman will introduce the variance request and will introduce the person(s) requesting the variance. Following the source's

presentation, the DAQ staff member assigned to review the request may be asked to comment on the Division's position.

1) The source requesting the variance will present the details of the request to the Board members, and respond to questions or statements from the Board concerning the request. DAQ staff is not expected to defend the variance.

2) The Board chairman will then request comments from staff assigned to the variance request, if necessary. Staff will present any public comments that have been received, DAQ's position and recommendation and respond to the Board's questions and statements.

3) Depending on the Board action (approved, modified or disapproved), the Executive Secretary will provide written notice to the requester concerning the Board's action, including any stipulations and limitations outlined by the Board. The same staff member that was assigned the initial action will prepare this notice.

g. The Board may review any variance already in place using the same process that was used for the original application. The Board may also revoke the variance, following the review process and discussion at a board meeting.

h. The variance can only be granted for a length of time as outlined in Utah Code 19-2-113(3) (see attached).

ATTACHMENT

STATUTE LANGUAGE

Title 19 Environmental Quality Code
Chapter 2 Air Conservation Act
19-2-113. Variances - Judicial Review

(1) (a) Any person who owns or is in control of any plant, building, structure, establishment, process, or equipment may apply to the board for a variance from its rules.

(b) The board may grant the requested variance following an announced public meeting, if it finds, after considering the endangerment to human health and safety and other relevant factors, that compliance with the rules from which variance is sought would produce serious hardship without equal or greater benefits to the public.

(2) A variance may not be granted under this section until the board has considered the relative interests of the applicant, other owners of property likely to be affected by the discharges, and the general public.

(3) Any variance or renewal of a variance shall be granted within the requirements of Subsection (1) and for time periods and under conditions consistent with the reasons for it, and within the following limitations:

(a) if the variance is granted on the grounds that there are no practicable means known or available for the adequate prevention, abatement, or control of the air pollution involved, it shall be only until the necessary means for prevention, abatement, or control become known and available, and subject to the taking of any substitute or alternate measures that the board may prescribe;

(b) (i) if the variance is granted on the grounds that compliance with the requirements from which variance is sought will require that measures, because of their extent or cost, must be spread over a long period of time, the variance shall be granted for a reasonable time that, in the view of the board, is required for implementation of the necessary measures; and

(ii) a variance granted on this ground shall contain a timetable for the implementation of remedial measures in an expeditious manner and shall be conditioned on adherence to the timetable; or

(c) if the variance is granted on the ground that it is necessary to relieve or prevent hardship of a kind other than that provided for in Subsection (a) or (b), it shall not be granted for more than one year.

(4) (a) Any variance granted under this section may be renewed on terms and conditions and for periods that would be appropriate for initially granting a variance.

(b) If a complaint is made to the board because of the variance, a renewal may not be granted unless, following an announced public meeting, the board finds that renewal is justified.

(c) To receive a renewal, an applicant shall submit a request for agency action to the board requesting a renewal.

(d) Immediately upon receipt of an application for renewal, the board shall give public notice of the application as required by its rules.

(5) (a) A variance or renewal is not a right of the applicant or holder but may be granted at the board's discretion.

(b) A person aggrieved by the board's decision may obtain judicial review.

(c) Venue for judicial review of informal adjudicative proceedings is in the district court in which the air contaminant source is situated.

(6) (a) The board may review any variance during the term for which it was granted.

(b) The review procedure is the same as that for an original application.

(c) The variance may be revoked upon a finding that:

(i) the nature or amount of emission has changed or increased; or

(ii) if facts existing at the date of the review had existed at the time of the original application, the variance would not have been granted.

(7) Nothing in this section and no variance or renewal granted pursuant to it shall be construed to prevent or limit the application of the emergency provisions and procedures of Section 19-2-112 to any person or property.

RULE LANGUAGE

R307-102-4. Variances Authorized.

(1) Variance from these regulations may be granted by the Board as provided by law (See Section 19-2-113) unless prohibited by the Clean Air Act:

(a) to permit operation of an air pollution source for the time period involved in installing or constructing air pollution control equipment in accordance with a compliance schedule negotiated by the Executive Secretary and approved by the Board.

(b) to permit operation of an air pollution source where there is no practicable means known or available for adequate prevention, abatement or control of the air pollutants involved. Such a variance shall be only until the necessary means for prevention, abatement or control becomes known and available, subject to the use of substitute or alternate measures the Board may prescribe.

(c) to permit operation of an air pollution source where the control measures, because of their extent or cost, must be spread over a considerable period of time.

(2) Variance requests, as set forth in Section 19-2-113, may be submitted by the owner or operator who is in control of any plant, building, structure, establishment, process or equipment.

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Facilities Planning and Management
Facilities Planning
General Services Building
Ames, IA 50011-4021
Phone: (515) 294-1014
Fax: (515) 294-1060

Letter of Transmittal

DATE: September 19, 2005

TO: Doug Loizeaux
Controlled Demolition Inc.
2737 Merryman's Mill Road
Phoenix MD 21131-1633

RE: Iowa State University – Towers Demolition

We are sending you the attached:

Copies	Description
1	Karl & Associates Inc. Dormitory Implosion Air Monitoring Survey

These are transmitted as checked below:

☐ For permanent records	☐ For signature	☐ Approved as submitted
☐ For approval	☐ As required	☐ Approved as noted
☐ For review and comment	☒ As requested	☐ Other: _____

Signed: _____
Kerry Dixon Fox, Project Manager
Project Management Services

Enclosures

If enclosures are not as noted, please contact us at once.

Iowa State University

Knapp & Storms Dormitories

Implosion Monitoring Report

Prepared by: Karl & Associates, Inc.
August, 2005

KARL & ASSOCIATES, INC.

Environmental & Occupational Health Consultants

August 22, 2005

Mr. Paul Richmond, CIH
Iowa State University
Associate Director Environmental Health & Safety
2809 Daley Drive
Ames, IA 50011-3660

Re: Dormitory Implosion Air Monitoring Survey
Karl & Associates, Inc. Project #05-0729

Dear Mr. Richmond:

Karl and Associates, Inc. is pleased to provide the analytical testing results, interpretation of findings, and a discussion of the pertinent issues regarding the ambient air monitoring survey relating to the dormitory implosion that occurred on July 19, 2005.

Background Information

The purpose of this study is to address community air quality issues that have been or are likely to be raised in connection with the demolition of Knapp and Storms dormitories. Prior to the planned implosion of the two buildings, "contaminants of interest" were defined and a sampling plan was designed to effectively monitor the air quality in the immediate vacinity surrounding the dormitories (see the Air Monitoring Site Map at the back of this report). Air and surface samples were collected on the day before the implosion, the day of the implosion, and the day following the implosion. Results from each day will be compared with each other and against applicable guidelines to access the impact of the implosion on overall air quality.

Contaminants of Interest

The following parameters were monitored in order to evaluate the impact of the implosion on air and/or surfaces surrounding the demolition site:

A. Total and Respirable Particulates

The United States Environmental Protection Agency (EPA) views suspended particulate in excess of the established concentrations as a potential health hazard. The US National Ambient Air Quality guideline is 0.15 mg/m^3 for total particulate. The Occupational Safety and Health Administration (OSHA) has established Permissible Exposure Limits (PEL's) of 15 mg/m^3 for total particulate and 5 mg/m^3 for respirable particulate.

B. Asbestos

Various asbestos containing materials were used in the construction of the dormitories. A thorough inspection of the buildings identified these materials and a licensed asbestos abatement company was contracted to remove these materials prior to demolition. Air samples were collected to verify the completeness of the asbestos abatement. The EPA, via the Asbestos Hazard Emergency Response Act (AHERA), has established a clearance level of 70 asbestos structures per square millimeter (s/mm^2) to allow re-occupancy of schools after asbestos abatement.

C. Lead

Most of the paint in the buildings is expected to be unaffected by the implosion and remain on the painted surfaces. However, some of those surfaces may be pulverized by the implosion and have the potential to cause some level of contamination in the dust plume. Air and surface samples were collected to determine the extent, if any, of lead contamination.

OSHA has established a PEL of 0.05 mg/m^3 for airborne lead dust. HUD (Dept. of Housing and Urban Development) considers a surface lead concentration of less than 40 μg/ft^2 on interior floors and 250 μg/ft^2 on windowsills to be hygienic.

D. Silica

Although silica is normally associated with occupational exposures in manufacturing and foundry industries, it is routinely found as a component in masonry and plaster. Most of the plaster materials will be removed from the dormitories prior to demolition, however crystalline silica may be released from the crumbling masonry.

The OSHA PEL for respirable silica is calculated depending on the percentage of silica (quartz) in the airborne dust. Actual results of this survey revealed silica concentrations in dust at approximately 10%. Based on this information, the calculated PEL for airborne silica would be 0.83 mg/m^3.

Summary of Findings

July 18, 2005 – One day prior to Implosion

Respirable dust and silica (quartz): Samples were collected and analyzed in 11 of the 12 defined sampling locations. Due to pump failure at location #8, no sample was submitted for evaluation.

All respirable dust results were less than the method detection limit of 0.05 mg. The resulting calculated airborne concentrations of less than 0.042 to 0.095 mg/m^3, were all below the ambient air guideline of 0.15 mg/m^3.

With the exception of one sample, all lab results for silica were less than the method detection limit of 0.005 mg. The sample at location #10 showed 0.010 mg silica. Calculated airborne

concentrations were less than the OSHA PEL of 0.83 mg/m^3, with the highest result of 0.009 mg/m^3.

Airborne Total Dust and Lead: Samples were collected and analyzed in all 12 defined sampling locations. No airborne lead or dust was detected on any of the samples resulting in concentrations less than 0.11 mg/m^3 total dust and less than 0.002 mg/m^3 lead. These results are less than their corresponding OSHA PEL's, 15 mg/m^3 for total dust and 0.05 mg/m^3 for lead.

Asbestos Fibers: Samples were collected and analyzed for 7 of the 12 defined sampling locations. No samples were collected at locations #1, #2, #4, #8, and #11 due to pump failure.

No asbestos fibers were detected on any of the samples submitted for analysis. The resulting limits of detection ranged from 7.7 to 13 structures/mm^2, all well below the AHERA clearance value of 70 structures/mm^2.

Surface Lead: Samples were collected and analyzed in all 12 defined sampling locations. Lead levels at all of the locations were below the laboratory limit of detection. Calculated surface concentrations of less than 10 μg/ft^2 were below the HUD guidelines.

July 19, 2005 – Day of Implosion

Respirable dust and silica (quartz): Samples were collected and analyzed in all of the 12 defined sampling locations.

Measurable levels of respirable dust were found on three of the samples: location #6 showed 0.184 mg/m^3, location #10 showed 0.058 mg/m^3 and location #8 showed 0.061 mg/m^3. Only location #6 was above the ambient air guideline of 0.15 mg/m^3.

All silica results were less than the method detection limit of 0.005 mg. The calculated airborne concentrations ranged from less than 0.004 to less than 0.006 mg/m^3, below the OSHA PEL of 0.83 mg/m^3.

Airborne Total Dust and Lead: Samples were collected and analyzed in all 12 defined sampling locations. Airborne dust was detected on five of the samples. Location #5 (0.24 mg/m^3), location #6 (0.89 mg/m^3) and location #8 (0.29 mg/m^3) were all above the ambient air guideline on 0.15 mg/m^3. Samples from location #10 (0.14 mg/m^3) and location #12 (0.12 mg/m^3) showed measurable dust results less than the ambient air guideline value. Total dust was not detected in any of the other seven locations. Calculated airborne concentrations for these locations ranged from less than 0.10 to less than 0.11 mg/m^3, all below the ambient air guideline.

No airborne lead was detected on any of the samples. Calculated results from all 12 locations were less than 0.002 mg/m^3 lead, below the OSHA PEL of 0.05 mg/m^3 for lead.

Asbestos Fibers: Samples were collected and analyzed for all of the 12 defined sampling locations. The sample from location #6 was overloaded with dust and could not be tested according to the AHERA protocol.

No asbestos fibers were detected on any of the samples submitted for analysis. The resulting limits of detection were less than 11 structures/mm^2, well below the AHERA clearance value of 70 structures/mm^2.

Alternative qualitative TEM analysis was performed on the dust from location #6. Results of this additional testing showed the presence of gypsum and other particulate containing calcium and silicon. No asbestos was detected on this sample.

Surface Lead: Samples were collected and analyzed in all 12 defined sampling locations. Lead was detected at 4 locations with only the sample from location #5 (49.2 μg/ft^2) above either HUD guideline. Other measurable results were obtained at locations #6 (13.4 μg/ft^2), location #8 (33.9 μg/ft^2), and location #10 (13.1 μg/ft^2), all below the HUD guidelines. Results for the remaining eight sample locations were below detection the limit of 10 μg/ft^2.

July 20, 2005 – One day after Implosion

Respirable dust and silica (quartz): Samples were collected and analyzed in all of the 12 defined sampling locations.

All respirable dust results were less than the method detection limit of 0.05 mg. The calculated airborne concentrations of less than 0.041 to 0.098 mg/m^3, were all below the ambient air guideline of 0.15 mg/m^3.

All silica results were less than the method detection limit of 0.005 mg. The calculated airborne concentrations ranged from less than 0.004 to less than 0.010 mg/m^3, below the OSHA PEL of 0.83 mg/m^3.

Airborne Total Dust and Lead: Samples were collected and analyzed in all 12 defined sampling locations. No airborne lead or dust was detected on any of the samples. Calculated concentrations were less than 0.11 mg/m^3 total dust and less than 0.002 mg/m^3 lead. These results are less than their respective OSHA PEL's, 15 mg/m^3 for total dust and 0.05 mg/m^3 for lead.

Asbestos Fibers: Samples were collected and analyzed for all of the 12 defined sampling locations. No asbestos fibers were detected on any of the samples submitted for analysis. The resulting limits of detection were 11 structures/mm^2, well below the AHERA clearance value of 70 structures/mm^2.

Surface Lead: Samples were collected and analyzed in all 12 defined sampling locations. Lead was detected at 2 locations: location #6 (12.6 μg/ft^2) and locations #10 (10.4 μg/ft^2), both below the HUD guidelines. Results for the remaining ten sample locations were below the 10 μg/ft^2 detection limit.

A summary chart showing all of the laboratory results and copies of all of the laboratory results are attached at the end of this report.

Discussion

Results of air monitoring on the day before the implosion of the two dormitories established a baseline against which subsequent monitoring could be compared. All but one of the laboratory results were below method detection limits, and all of the calculated results were less than their applicable guideline concentrations.

Air and surface monitoring results on the day of the implosion were consistent with observations of the dust cloud's migration following the implosion. The dust cloud moved in the direction of the prevailing winds toward sampling locations #6, #8 and #10. Respirable and/or total dust airborne concentrations were slightly higher at these three locations as well as at location #5, which was the location closest to Storms Dormitory. These four locations were also the only locations where lead was detected in the surface dust.

Monitoring on the day following the implosion demonstrates that air quality returned to the conditions represented on the day prior to the implosion. None of the airborne contaminants of interest were detected on any of the samples from any of the monitoring locations. Only surface lead results at locations #6 and #10 were slightly above the method detection limits on the day following the implosion. Because no lead was detected in the airborne samples on this day, surface lead results are somewhat inconsistent. Residual trace levels of lead may have carried over from the previous day's monitoring. Regardless of the source, surface lead results were significantly below HUD guidelines.

Overall, results of monitoring before, during, and after the implosion event show that the dust created by the implosion had little or no effect on the surrounding environment.

Please contact Karl & Associates Inc. if you have any questions or for further insight into this matter.

Respectfully submitted,

Karl & Associates, Inc.

Fred Usbeck, CIH
Director of Consulting

Paul F. McCaa
Senior Project Manager

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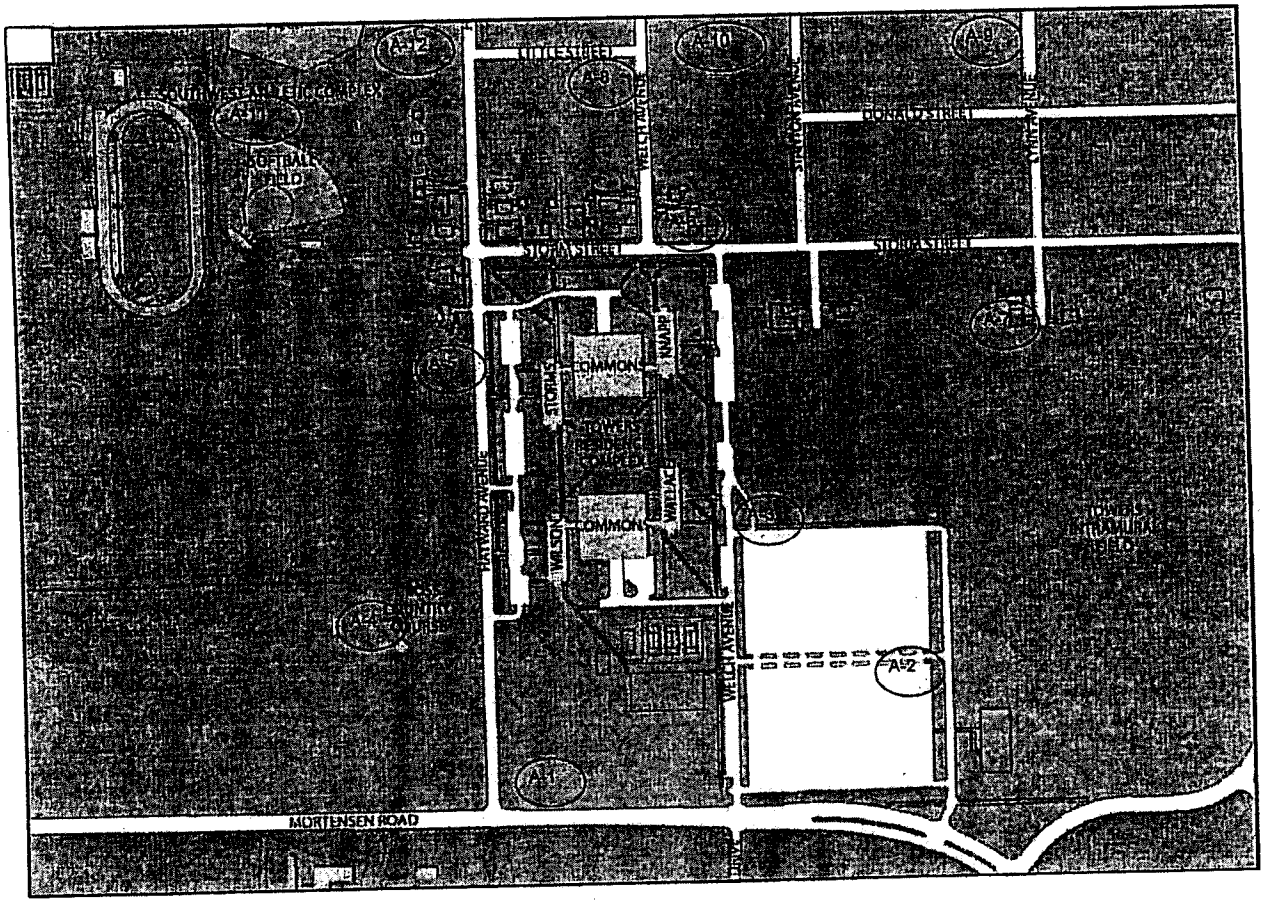
Terms and Abbreviations

AHERA	Asbestos Hazard Emergency Response Act (EPA)
EPA	United States Environmental Protection Agency
HUD	Department of Housing and Urban Development
mg/m^3	milligrams per cubic meter
$\mu g/ft^2$	micrograms per square foot
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit (OSHA)
S/mm^2	Structures per square millimeter (asbestos)

Iowa State University
Dormitory Implosion
Ambient Air Sampling Locations



A-1	Mortensen Rd. near Hayward Ave.
A-2	East side of parking lot at fire lane east of Welch Ave.
A-3	Towers Intramural Field near NW corner of parking lot
A-4	Field west of Hayward & north of Command Ctr.
A-5	611 Hayward Ave.
A-6	Storm Street between Stanton & Welch Ave.
A-7	NW corner of Towers Intramural Field, south of Lynn Ave.
A-8	Donald St. & Welch Ave.
A-8	Donald St. & Lynn Ave.
A-10	Cranford School
A-11	South baseball field, 3rd base line beyond fence
A-12	2621 Knapp Street

R & R
ENVIRONMENTAL, INC.
ASBESTOS • LEAD • INDUSTRIAL HYGIENE
47 West 9000 South, Suite #2 Sandy, Utah 84070
(801) 352-2380 : Office (801) 352-2381: Fax

AN ASBESTOS SURVEY AND ASSESSMENT FOR THE DESERET TOWERS "W" HALL BRIGHAM YOUNG UNIVERSITY PROVO, UTAH

July 7, 2006

Prepared for:

Kerry J. Smith, CIH
Industrial Hygiene Officer
Risk Management and Safety Department
Brigham Young University
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Provo, Utah 84602-0100

Prepared by:
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EXECUTIVE SUMMARY

Asbestos-containing material (ACM) was identified in the Deseret Towers "W" Hall are as follows:

Material	Location	Quantity	% Asbestos	Friable	Condition
Textured Ceiling Material	Floors 2-7	28,000 ft^2	3% C	Yes	Good to Fair
Vinyl Floor Tile	Janitor Closets 2-7, Room 21	120 ft^2	8% C	No	Good
Sink Undercoat	Ironing Room Sinks	6 fixtures	5% C	No	Good
Fire Doors	Throughout Building	>15 doors	Assumed	No	Good

C=Chrysotile

Note 1: Every effort was made to identify all asbestos-containing vinyl floor tile within the building. However, any previously unidentified vinyl floor tile encountered during future renovations should be considered asbestos-containing until sampling and analysis proves otherwise.

Note 2: Thermal system insulation samples analyzed from the building contained no detectable levels of asbestos. Should major renovations of the thermal system be scheduled, thermal system insulation in the area should be assessed to determine its homogeneity with the sampled materials. It should also be assumed that thermal system insulation existing in certain wall and ceiling locations not identified during the course of this inspection will also require assessment prior to disturbance.

Note 3: No roofing samples were collected during the course of this inspection due to the rubberized (membranous) nature of the roofing material. Future roof renovation work should address asbestos sampling with regards to the roof.

Removal cost estimates (at current dollars) for individual floors and the entire building are outlined in the following table:

Deseret Towers "W" Hall Floor/Location	*Cost for complete abatement (not including renovation or replacement costs)	Estimate of time needed to Complete abatement
Basement/Mechanical Locations	$2,500.00	<1 week
1st Floor	$2,500.00	<1 week
2nd Floor	$25,500.00	1-2 weeks
3rd Floor	$25,500.00	1-2 weeks
4th Floor	$25,500.00	1-2 weeks
5th Floor	$25,500.00	1-2 weeks
6th Floor	$25,500.00	1-2 weeks
7th Floor	$25,500.00	1-2 weeks
****Entire Building**	**$159,000.00**	**6-8 weeks**

* Assuming the entire floor/location would be vacated prior to the start of removal activities.

** This cost estimate is for complete removal of asbestos from the building all at one time.

DESERET TOWERS "W" HALL
DATE OF SURVEY: JUNE 2006
NESHAP - REGULATED
ASBESTOS-CONTAINING MATERIALS (R-ACM)

1. Friable asbestos material (>1% asbestos and can be crumbled, pulverized or reduced to powder by hand pressure)
   - ____Thermal system insulation (TSI)*
   - _X_Textured ceiling material (TCM)*
   - ____Spray-on insulation or fireproofing* (Column Fireproofing)
   - ____Blown-in insulation*
   - ____Ceiling tiles/panels*
   - ____Plaster, gypsum board, gypsum board joint compound*
   - ____Cloth materials*
   - ____Paper materials*
   - ____Electrical wiring insulation*
   - ____Sink undercoating (loose)*
   - ____Other*

2. Category I ACM which has become friable
   - ____Packings
   - ____Gaskets
   - ____Resilient floor coverings (floor tile and sheet vinyl)
   - ____Asphalt roofing products

3. Category I ACM that will be or has been subjected to sanding, grinding, cutting or abrading
   - ____Packings
   - ____Gaskets
   - ____Resilient floor coverings (floor tile and sheet vinyl)
   - ____Asphalt roofing products

4. Category II ACM that has a high probability of becoming or has become friable in the course of demolition or renovation operations
   - ____Asbestos cement materials (transite)*
   - ____Asphalt, tar and rubber-base ACM products other than roofing products*
   - ____Non-asphalt and non-paper roofing products*
   - ____Paint*
   - ____Fire brick and/or mortar*
   - ____Stainless steel sink undercoating (solid)*
   - ____Encapsulated TCM*
   - ____Encapsulated TSI*
   - ____Mastic for floor tile, ceiling tile, cove molding, etc.*
   - ____Other

DESERET TOWERS "W" HALL
DATE OF SURVEY: JUNE 2006
NESHAP NON-REGULATED
ASBESTOS-CONTAINING MATERIAL (N-R-ACM)

1. ≥ 1% asbestos

2. Category I Non-friable (cannot be crumbled, pulverized, or reduced to powder by hand pressure) ACM with >1% asbestos by new PLM procedure
   _____Packings
   _____Gaskets
   __X__Resilient floor coverings (floor tile)
   _____Asphalt roofing products

3. Category II Non-friable ACM with >1% asbestos by new PLM procedure (Category includes items meeting Category I definition but not specifically listed in that category)
   _____Asbestos cement materials (transite)* (Fume hoods, counter tops, and window panels)
   _____Asphalt, tar and rubber-base ACM products other than roofing products (HVAC Putty)*
   _____Non-asphalt and non-paper roofing products*
   _____Paint*
   _____Fire brick and/or mortar*
   __X__Sink undercoating (solid)*
   _____Mastic for floor tile, ceiling tile, cove molding, etc.*
   __X__Other* (Fire door)

Notes:

1. (*) denotes R & R's interpretation of materials included in this category.
2. New PLM procedure is outlined in Appendix A, Subpart F, 40 CFR, Part 783, Section 1, Polarized Light Microscopy.
3. The Environmental Protection Agency (EPA) National Emission Standard for Hazardous Air Pollutants (NESHAP) asbestos revision as outlined in 40 CFR, Part 61, became effective November 20, 1990. The asbestos classification system outlined in the revision and included in this section is dynamic in nature. Asbestos materials classified as "NON-REGULATED" at the time of the survey may become "REGULATED" due to ongoing or planned maintenance, renovation or demolition actions which can transform a material containing greater than 1% asbestos from a "non-friable" and NON-REGULATED to a friable and REGULATED condition. Classification of ACM in this section and in the executive summary of this report is, therefore, based on the observations of the surveyor at the time of the survey and may or may not be appropriate at later dates.
4. Maintenance, renovation, demolition, weathering, normal wear, water or other damage can alter the "NON-REGULATED" status of materials, and necessitate precautions required for handling them as "REGULATED" asbestos-materials.

AN ASBESTOS SURVEY AND ASSESSMENT
AT THE
DESERET TOWERS "W" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

During the month of June 2006, R & R Environmental, Inc. (R & R) of Sandy, Utah, conducted an asbestos survey and assessment at Brigham Young University's Deseret Towers "W" Hall in Provo, Utah. Bulk samples of suspect asbestos-containing materials were collected and analyzed. The condition of all friable and non-friable asbestos-containing materials was assessed. The following accredited inspector conducted the survey and assessment.

_____ Date: _____

David C. Roskelley, MSPH, CIH, CSP
AHERA Inspector #5 PSI 65461 I
State of Utah Inspector #ASB-1370 (1408)
Certified Safety Professional #15774
Certified Industrial Hygienist #8529

AN ASBESTOS SURVEY AND ASSESSMENT
FOR THE
DESERET TOWERS "W" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

INTRODUCTION AND BACKGROUND

During the month of June 2006, R & R Environmental, Inc. (R & R) of Sandy, Utah, conducted an asbestos survey and assessment at Brigham Young University's Deseret Towers "W" Hall in Provo, Utah. The purpose of the survey was to identify materials within and on the building that contain asbestos and to recommend appropriate response actions.

Brigham Young University intends that no occupant or worker inside a Brigham Young University facility shall be exposed to airborne asbestos fibers at concentrations potentially hazardous to health, and has initiated a program to abate potential asbestos problems in all its facilities.

METHODS AND MATERIALS

A survey of the facility was conducted to observe, identify and locate: surfacing materials, pipe, boiler and tank insulation, ceiling and floor tiles, siding and roofing materials suspected of containing asbestos. All areas of the building accessible to observation were inspected.

Bulk samples of suspect materials were collected and microscopically analyzed for asbestos content by Dixon Information Inc., in Salt Lake City, Utah. Dixon participates in the National Institute for Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP).

Asbestos percentages were estimated utilizing the polarized light microscopy (PLM) and dispersion staining methods as prescribed by NIOSH.

BUILDING DESCRIPTION AND OBSERVATIONS

Deseret Towers "W" Hall, Provo, Utah

STRUCTURE: Approximately 50,000 square foot block and brick, and re-enforced concrete building

INTERIOR WALLS: Concrete in basement, block and brick, with some wood-framing throughout upper floors.

ATTIC: None

CRAWL SPACE: Pipe chases in various basement and interior wall and ceiling locations

FIRE DOOR: Throughout building

HEATING SYSTEM: Boiler/Radiator

CULINARY WATER LINES: ACM with mudded elbows, fittings, joints, etc.

CEILING FINISHES AND SUBSTRATE: ACM Textured Ceiling Material on upper floors, troweled-on ACM knock-down texturing on the first floor, and non-ACM ceiling tiles or unfinished concrete in the basement.

FLOOR COVERINGS AND SUBSTRATE: Concrete, ACM vinyl floor tile and mastic or carpet on concrete

PEAKED ROOF: None

FLAT ROOF: Rubberized membranous roof layer

INACCESSIBLE AREAS: Certain locations above ceilings and pipe chases throughout the building

ADDITIONAL NOTES AND OBSERVATIONS: See Executive Summary

RESULTS

Results of the laboratory analyses of the bulk samples collected at the Deseret Towers "W" Hall are summarized in Table 1 below.

Table 1. Bulk Sample Results
Deseret Towers "W" Hall

Area Sample No.	Material Lab Results	Location
	12" Vinyl Floor Tile/Mastic	
DTW-01	None Detected	Room 821
DTW-02	8% C	Room 644
DTW-03	8% C	Room 21
DTW-04	None Detected	Room 90
	Rolled Vinyl Flooring	
DTW-05	<1% C	Room 791
	Covebase	
DTW-06	None Detected	Room 644
DTW-07	None Detected	Room 28
	12" Ceiling Tile	
DTW-08	None Detected	Room 1
DTW-09	None Detected	Room 128
	2 x 2 Ceiling Panel	
DTW-10	None Detected	Room 126
	Sink Undercoat	
DTW-11	5% C	Room 539
DTW-12	5% C	Room 639
DTW-13	5% C	Room 739
	Cloth Duct Tape	
DTW-14	None Detected	Room 12
	Fireproofing, Column	
DTW-15	None Detected	1st Floor Ceiling Crawlspace
	Thermal System Insulation, End Resin	
DTW-16	None Detected	Room 15

Area	Material

Sample No.	Lab Results	Location
	Textured Ceiling Material, Acoustical	
DTW-17	3% C	Room 235
DTW-18	3% C	Room 239
DTW-19	3% C	Room 339
DTW-20	3% C	Room 392A
DTW-21	3% C	Room 435
DTW-22	3% C	Room 439
DTW-23	3% C	Room 535
DTW-24	3% C	Room 592A
DTW-25	3% C	Room 646
DTW-26	3% C	Room 690 Lobby
DTW-27	3% C	Room 735
DTW-28	3% C	Room 790 Lobby
	Textured Ceiling Material, Troweled	
DTW-29A	None Detected	Room 126
DTW-29B	None Detected	Room 126
DTW-29C	None Detected	Room 126
	Plaster	
DTW-30	None Detected	Room 15
DTW-31	None Detected	Room 244
DTW-32	None Detected	Room 344
DTW-33	None Detected	Room 444
DTW-34	None Detected	Room 544
DTW-35	None Detected	Room 691
DTW-36	None Detected	Room 734
	Wall System	
DTW-37	None Detected	Room 290 East
DTW-38	None Detected	Room 390 North

Area Sample No.	Material Lab Results	Location
	Wall System (cont.)	
DTW-39	None Detected	Room 480 South

DTW-40	None Detected	Room 590 North
DTW-41	None Detected	Room 690 West
DTW-42	None Detected	Room 790 East

PHOTO LOG

1. **Exterior view of building looking southeast**

2. **Textured ceiling material throughout the building contains asbestos**

3. **Sink undercoating in the ironing room areas contains asbestos**

4. **Vinyl floor tile contains asbestos**

5. **Vinyl floor tile contains asbestos**

PHOTO 1

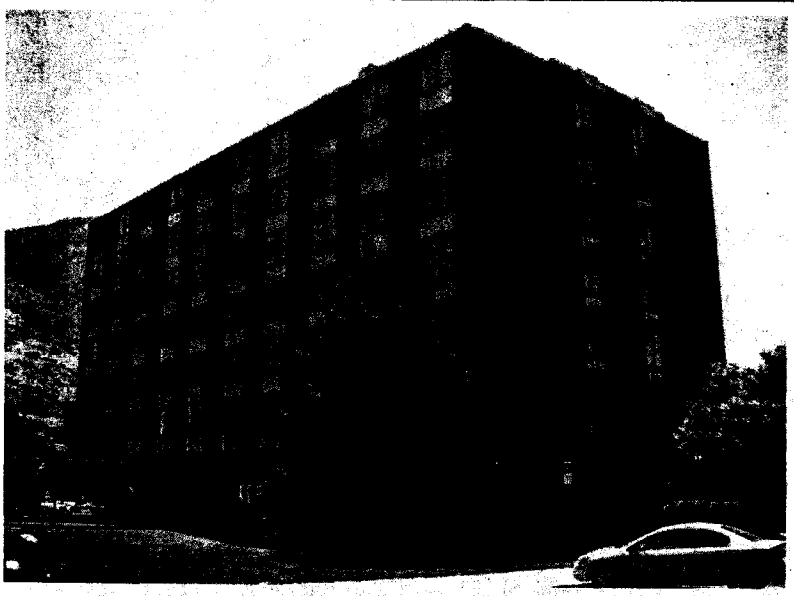
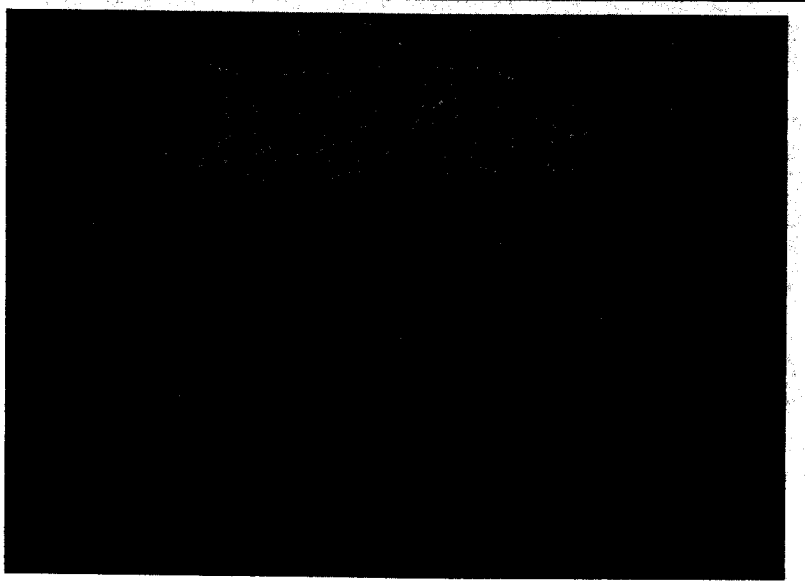


PHOTO 2



R & R Environmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:		
DESIGNED BY:	SCALE:	REVIEWED BY:
DRAWN BY:	DATE:	FILE:

SITE PHOTOGRAPHS

AN ASBESTOS SURVEY AND ASSESSMENT

DESERET TOWERS "W" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

PHOTO 3

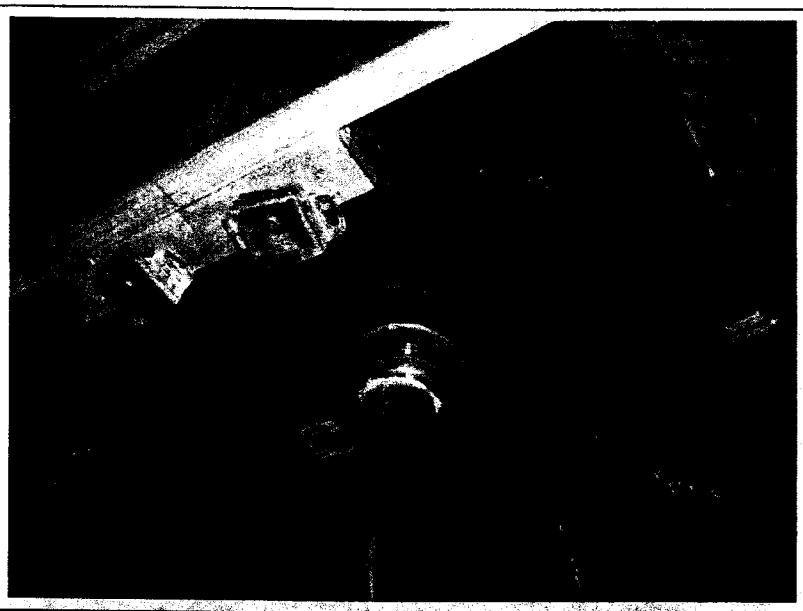
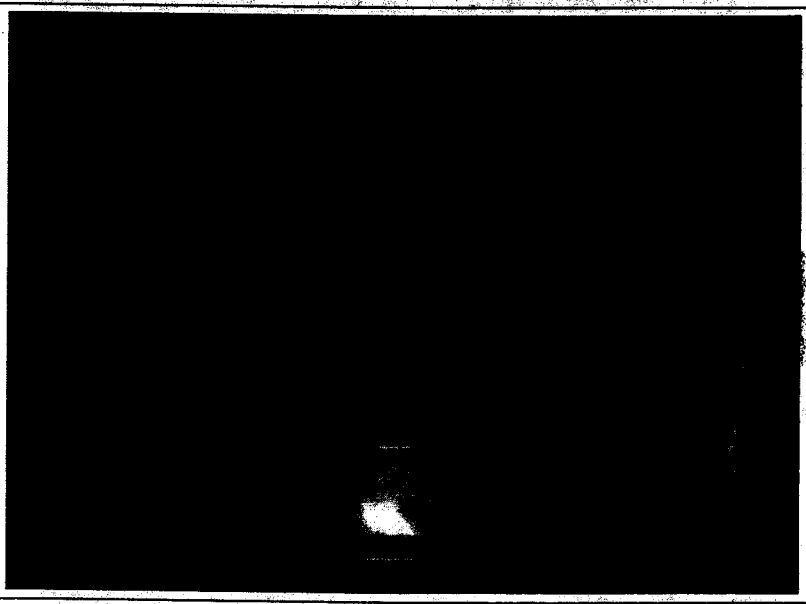


PHOTO 4



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AN ASBESTOS SURVEY AND ASSESSMENT

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BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

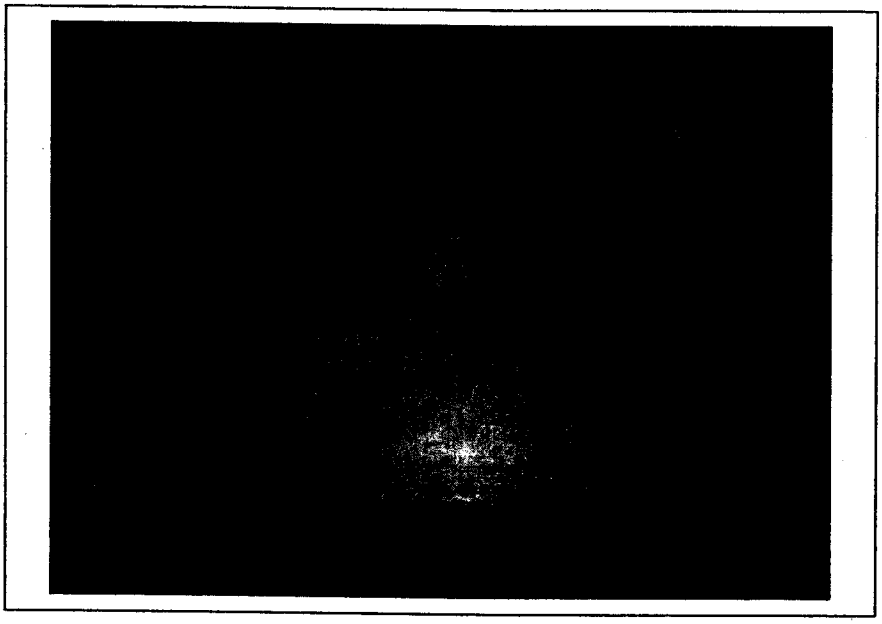

PHOTO 5

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PROJECT NO:		
DESIGNED BY:	SCALE:	REVIEWED BY:
DRAWN BY:	DATE:	FILE:

SITE PHOTOGRAPHS

AN ASBESTOS SURVEY AND ASSESSMENT

DESERET TOWERS "W" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

Asbestos Management Plan

for the

Deseret Towers "W" Hall
Brigham Young University
Provo, Utah

July 31, 2006

Status:
- ☐ Surveyed -- No Asbestos-Containing Material (ACM)
- ☒ Surveyed -- ACM
- ☐ Surveyed -- ACM (Partial Removal)
- ☐ Surveyed -- ACM (Complete Removal)

Prepared by
R & R Environmental, Inc.
47 West 9000 South, Suite #2
Sandy, Utah 84070
(801) 541-1035

Inspector/Reviewer

David C. Roskelley, MSPH, CIH, CSP
AHERA Management Planner #960103
State of Utah Mangement Planner #ASB-1370 (2304)
Certified Safety Professional #15774
Certified Industrial Hygienist #8529

I. PURPOSE

Information in this document applies to Brigham Young University employees and any other personnel involved in construction, maintenance, or remodeling in this facility. A copy of this plan should be readily available to Brigham Young University employees in their work area.

Brigham Young University's asbestos program goals are to:

- Inspect buildings for asbestos and establish management plans.
- Manage asbestos "in place" when possible to do so without endangering health or the environment.
- Remove (abate) asbestos during renovations or demolitions.
- Remove (abate) damaged asbestos when discovered.
- Train appropriate employees concerning asbestos awareness, operations and maintenance practices and asbestos regulations.

Custodial personnel and others doing maintenance and repair work in the facility should acquaint themselves with the contents of this notification. They should pay particular attention to the survey results and the list of suspect asbestos materials (Sections III and IV).

In the future, care should be taken to ensure that no asbestos-containing construction or patching materials are used in this building.

II. BACKGROUND

Asbestos is a naturally occurring mineral. It is distinguished from other minerals by the fact that its crystals form into long thin fibers. Asbestos has proven well-suited for many uses in the construction trades because of its unique properties -- it does not burn, it is strong, it is a good insulator of heat and electricity, and it is not broken down by chemicals. Asbestos fibers become a significant health concern when they are inhaled. Exposure to asbestos fibers has been linked to *asbestosis* (scarring [fibrosis] of the lung), *lung cancer* (malignant tumor of the bronchial covering), *mesothelioma* (cancer of the chest cavity lining), and other diseases of the lung and chest cavity.

Brigham Young University intends that no occupant or worker inside of a Brigham Young University facility should be exposed to airborne asbestos fibers at concentrations potentially hazardous to health, and has initiated a program to manage potential asbestos problems in its facilities. Procedures outlined in this notification should be followed. Only qualified personnel who have been properly trained and equipped are authorized to handle or remove ACM.

This notification is based primarily on the asbestos inspection completed at the facility in September, 2003 by David C. Roskelley, Certified Safety Professional, of R & R Environmental, Inc. A summary of the inspection findings, including building locations where ACM was found, is included in this document. A copy of the entire asbestos inspection report may be obtained by contacting R&R or the Risk Management & Safety office.

III. SPECIFIC LOCATIONS OF ASBESTOS-CONTAINING MATERIAL (ACM)

The following summary tables list the specific locations where ACM was identified in the Deseret Towers "W" Hall. The tables also list the type and quantity of construction materials containing the asbestos. They may also list the percentage and specific types of asbestos (Chrysotile, Amosite, Crocidolite, Anthophyllite, Tremolite, or Actinolite) in the material.

Table 1. Asbestos-Containing Material
Deseret Towers "W" Hall

Material	Location	Quantity	% Asbestos	Friable	Condition
Textured Ceiling Material	Floors 2-7	28,000 ft^2	3% C	Yes	Good to Fair
Vinyl Floor Tile	Janitor Closets 2-7, Room 21	120 ft^2	8% C	No	Good
Sink Undercoat	Ironing Room Sinks	6 fixtures	5% C	No	Good
Fire Doors	Throughout Building	>15 doors	Assumed	No	Good

C=Chrysotile

Note 1: Every effort was made to identify all asbestos-containing vinyl floor tile within the building. However, any previously unidentified vinyl floor tile encountered during future renovations should be considered asbestos-containing until sampling and analysis proves otherwise.

Note 2: Thermal system insulation samples analyzed from the building contained no detectable levels of asbestos. Should major renovations of the thermal system be scheduled, thermal system insulation in the area should be assessed to determine its homogeneity with the sampled materials. It should also be assumed that thermal system insulation existing in certain wall and ceiling locations not identified during the course of this inspection will also require assessment prior to disturbance.

Note 3: No roofing samples were collected during the course of this inspection due to the rubberized (membranous) nature of the roofing material. Future roof renovation work should address asbestos sampling with regards to the roof.

IV. BULK SAMPLING RESULTS

Representative samples of accessible building materials suspected of containing asbestos were collected and forwarded to an accredited laboratory for analysis. Samples were analyzed using the National Institute for Occupational Safety and Health (NIOSH) approved polarizing light microscopy methods. All materials with content greater than 1% are identified as ACM.

RESULTS

See Table 2 on the following pages for results of the laboratory analyses of the bulk samples collected at the Deseret Towers "W" Hall.

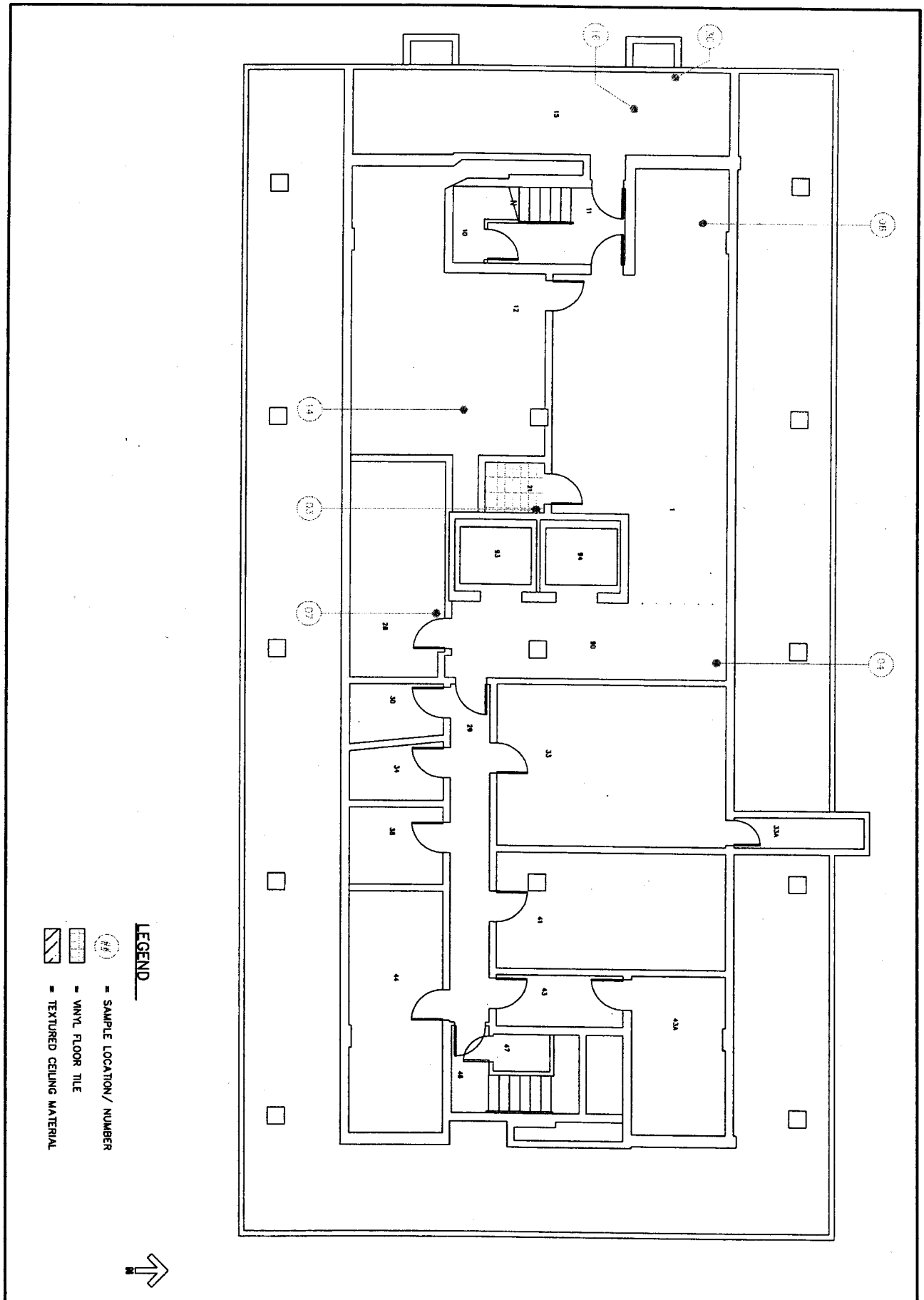
Table 2. Bulk Sample Results
Deseret Towers "W" Hall

Area Sample No.	Material Lab Results	Location
	12" Vinyl Floor Tile/Mastic	
DTW-01	None Detected	Room 821
DTW-02	8% C	Room 644
DTW-03	8% C	Room 21
DTW-04	None Detected	Room 90
	Rolled Vinyl Flooring	
DTW-05	<1% C	Room 791
	Covebase	
DTW-06	None Detected	Room 644
DTW-07	None Detected	Room 28
	12" Ceiling Tile	
DTW-08	None Detected	Room 1
DTW-09	None Detected	Room 128
	2 x 2 Ceiling Panel	
DTW-10	None Detected	Room 126
	Sink Undercoat	
DTW-11	5% C	Room 539
DTW-12	5% C	Room 639
DTW-13	5% C	Room 739
	Cloth Duct Tape	
DTW-14	None Detected	Room 12
Area Sample No.	Material Lab Results	Location
	Fireproofing, Column	

DTW-15	None Detected	1st Floor Ceiling Crawlspace
	Thermal System Insulation, End Resin	
DTW-16	None Detected	Room 15
	Textured Ceiling Material, Acoustical	
DTW-17	3% C	Room 235
DTW-18	3% C	Room 239
DTW-19	3% C	Room 339
DTW-20	3% C	Room 392A
DTW-21	3% C	Room 435
DTW-22	3% C	Room 439
DTW-23	3% C	Room 535
DTW-24	3% C	Room 592A
DTW-25	3% C	Room 646
DTW-26	3% C	Room 690 Lobby
DTW-27	3% C	Room 735
DTW-28	3% C	Room 790 Lobby
	Textured Ceiling Material, Troweled	
DTW-29A	None Detected	Room 126
DTW-29B	None Detected	Room 126
DTW-29C	None Detected	Room 126
	Plaster	
DTW-30	None Detected	Room 15
DTW-31	None Detected	Room 244
DTW-32	None Detected	Room 344
DTW-33	None Detected	Room 444
DTW-34	None Detected	Room 544
DTW-35	None Detected	Room 691

Area Sample No.	Material Lab Results	Location
	Plaster (cont.)	
DTW-36	None Detected	Room 734

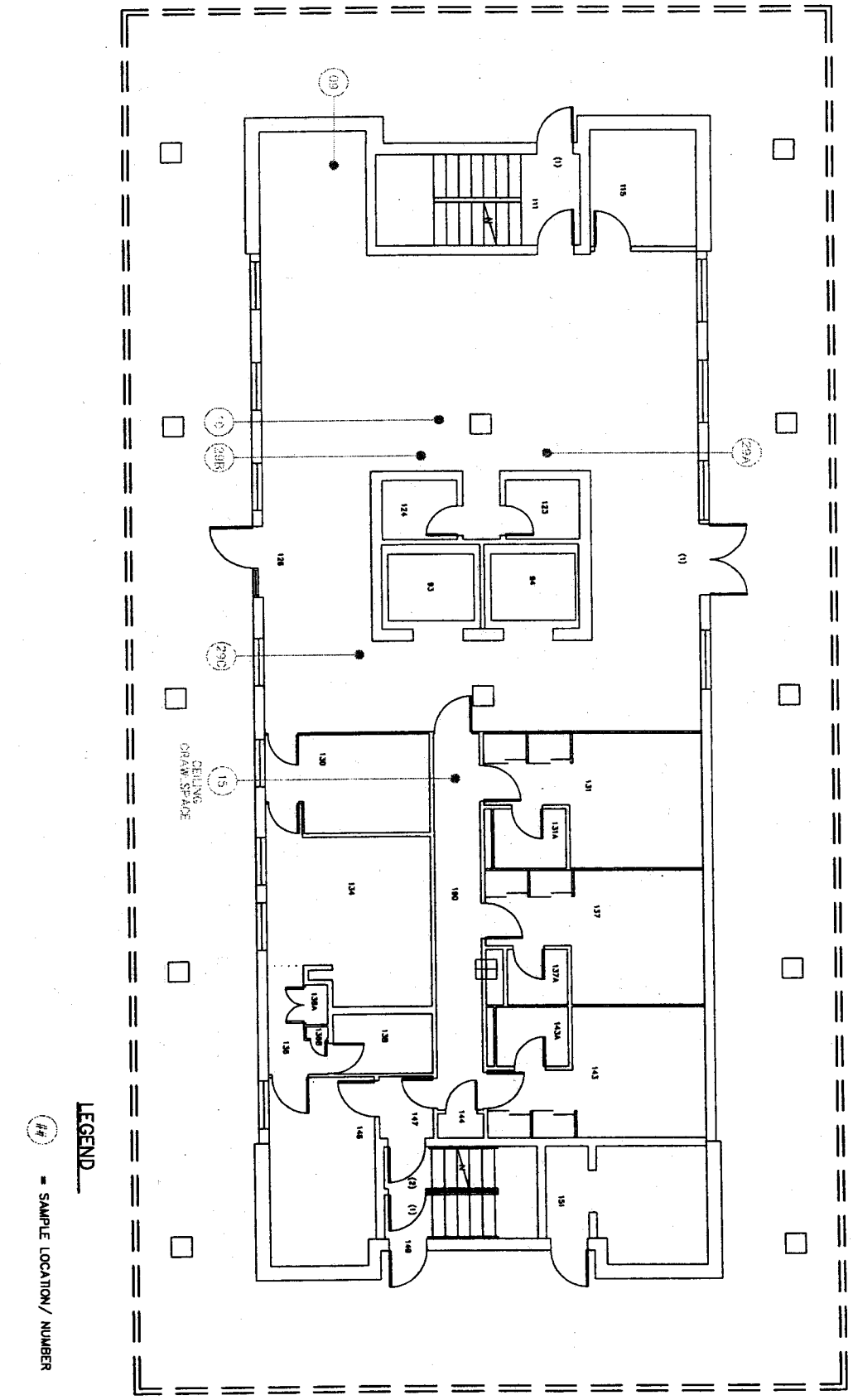
	Wall System	
DTW-37	None Detected	Room 290 East
DTW-38	None Detected	Room 390 North
DTW-39	None Detected	Room 480 South
DTW-40	None Detected	Room 590 North
DTW-41	None Detected	Room 690 West
DTW-42	None Detected	Room 790 East



Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building

CAD DATABASE
Date 4/3/00

DT W
BASEMENT

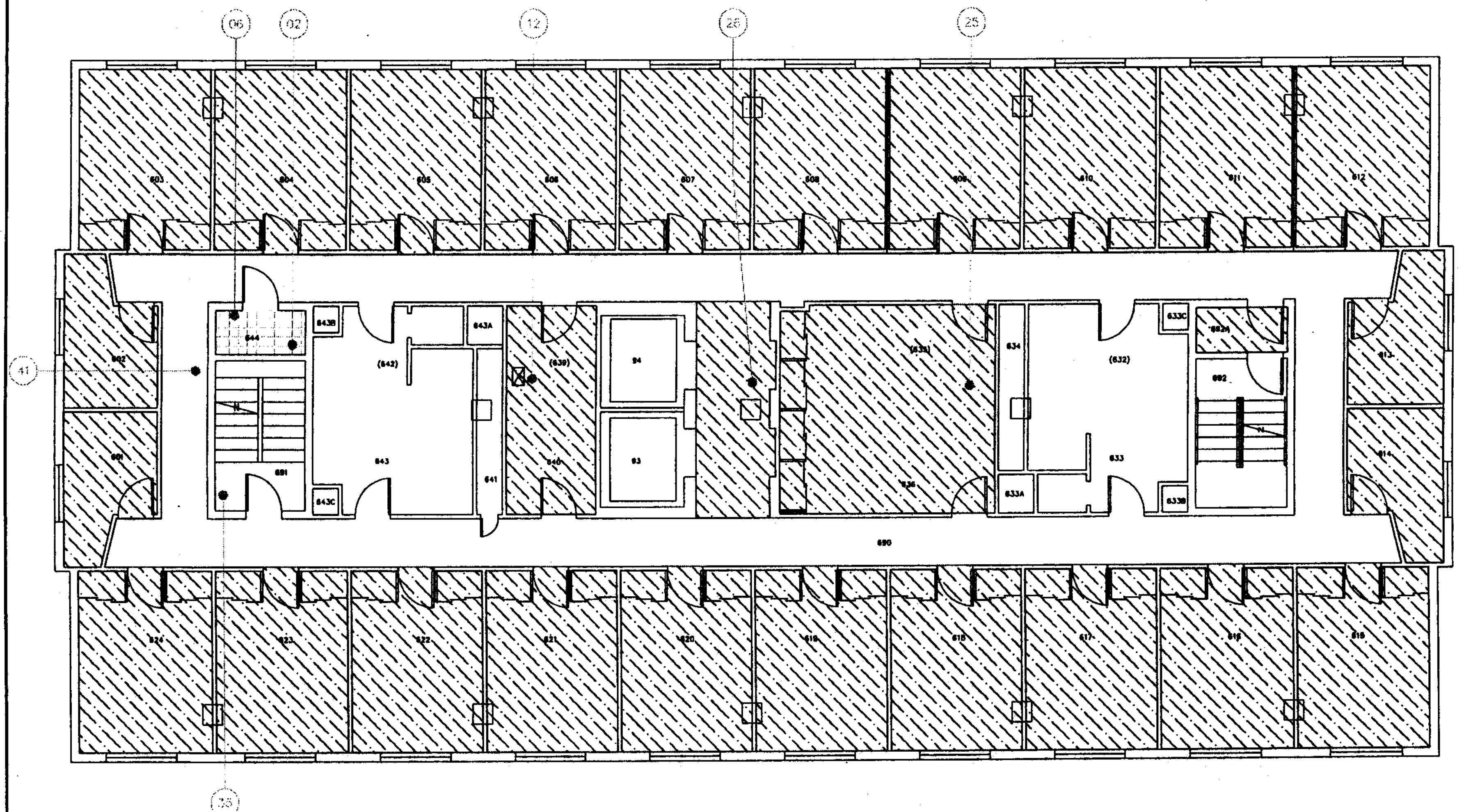


LEGEND

(#) = SAMPLE LOCATION/ NUMBER

N

Brigham Young University PLANNING DEPARTMENT 240 Brewster Building		CAD DATABASE Date 1/8/97	DT W 1ST FLOOR



LEGEND

(##) = SAMPLE LOCATION/ NUMBER

= VINYL FLOOR TILE

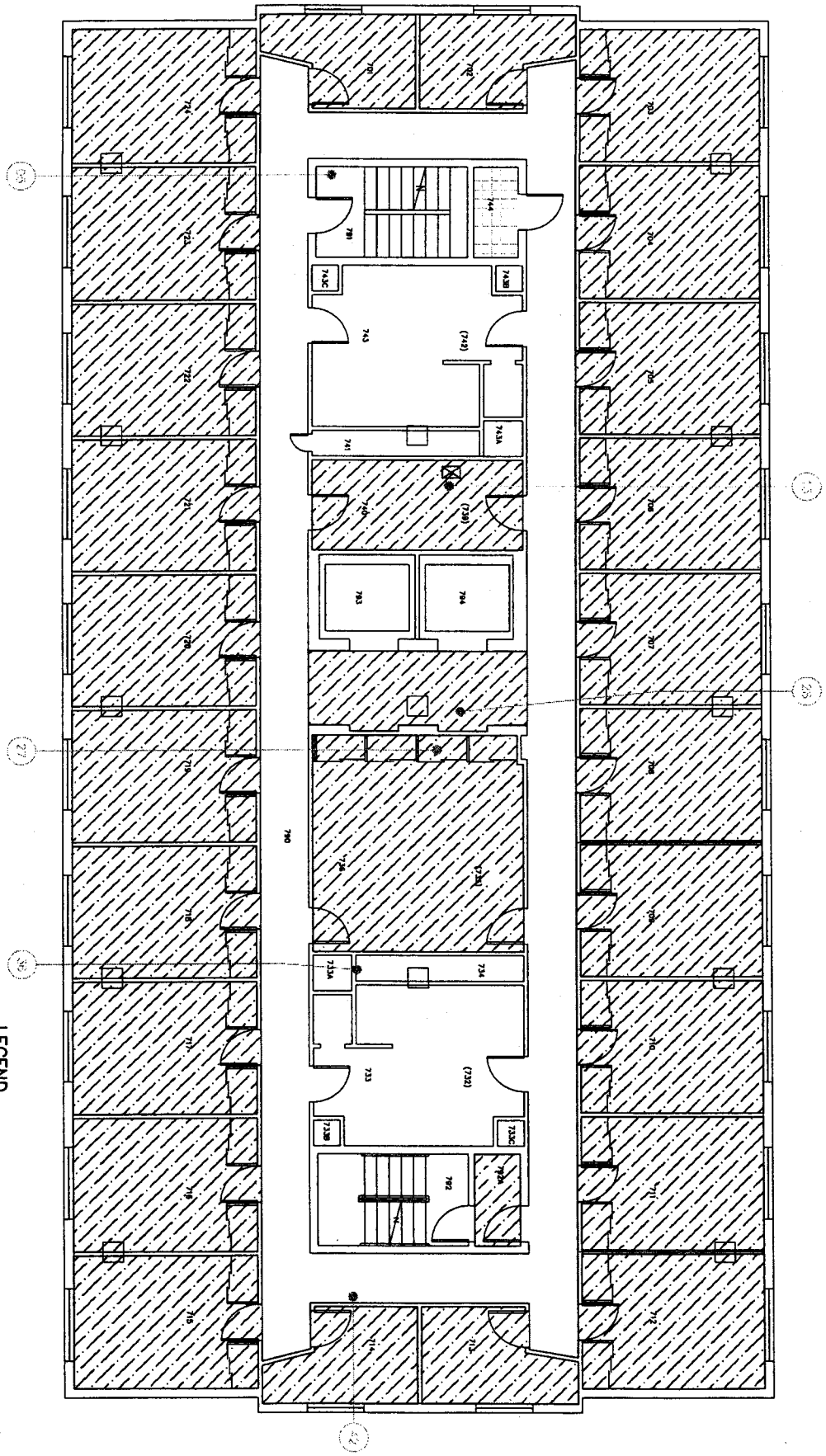
= TEXTURED CEILING MATERIAL

⊠ = SINK UNDERCOAT

Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building

CAD DATABASE
Date 10/10/91

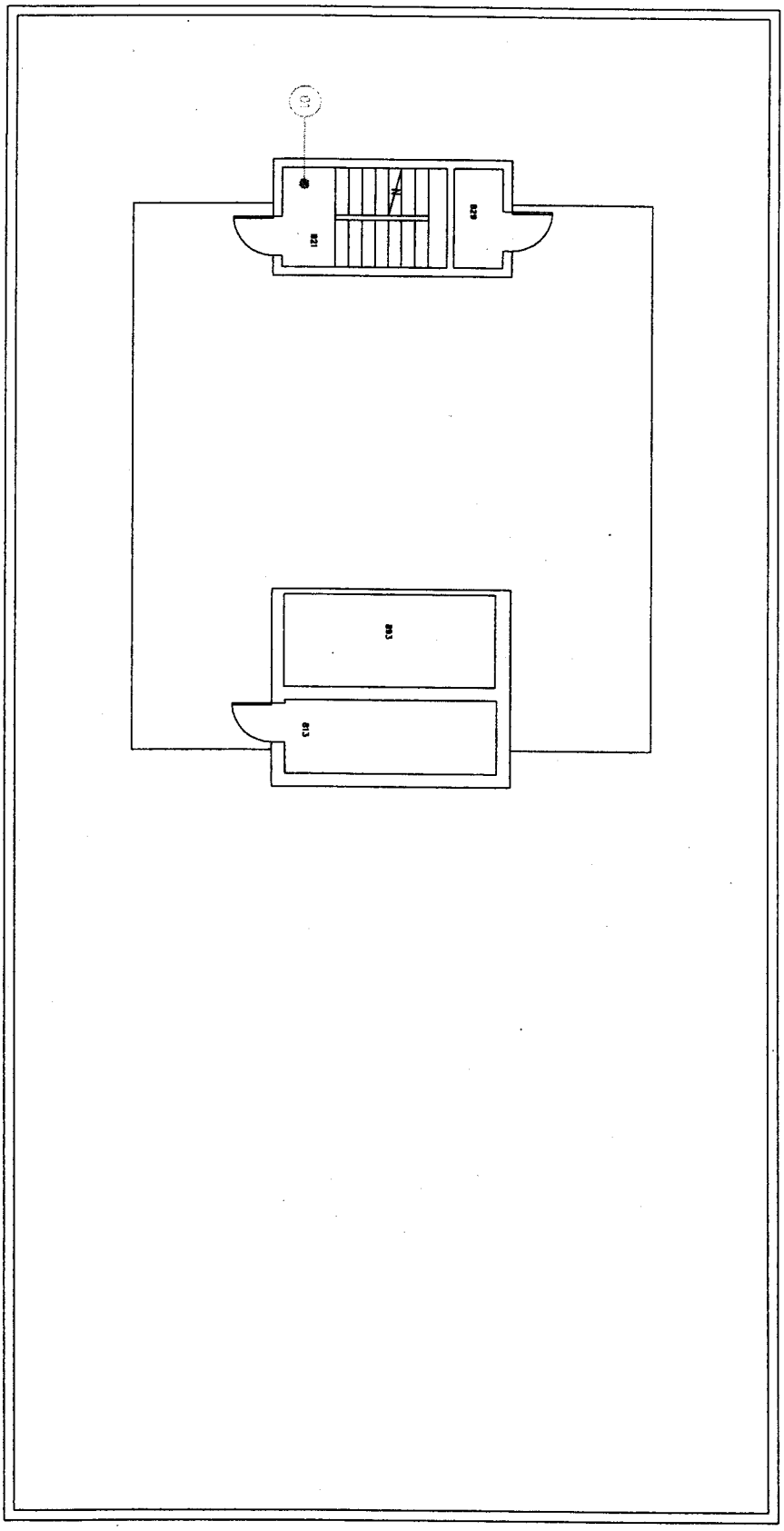
DT W
6TH FLOOR



Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building

CAD DATABASE
Date 7/28/99

DT W
7TH FLOOR



LEGEND

(#) = SAMPLE LOCATION/ NUMBER

N

Brigham Young University PLANNING DEPARTMENT 240 Brewster Building		CAD DATABASE Date 7/29/99	DT W 8TH FLOOR

V. POLICY AND PROCEDURES

The Church's asbestos materials policy is discussed in the Church Asbestos Program Manual, Section 7, "Asbestos Operations and Maintenance (O&M) Program." Brigham Young University employees who may be working near asbestos should receive at least two hours of asbestos awareness training and follow the work practices in the O&M Program.

The specific locations in this building where ACM has been identified are in Section III of this notification. While every attempt was made to conduct a thorough survey of the building, it is possible that some suspect asbestos materials may have been overlooked because they were inaccessible, (under furnaces, or inside walls, attics, or crawlspaces with no apparent access points) or not commonly considered by the consultant at the time of the survey to be suspect asbestos-containing construction materials.

Typical suspect materials included pipe, boiler, and tank insulation; sprayed or trowelled-on ceiling and wall coatings; ceiling tiles and adhesives; asbestos-cement (Transite) panels and pipes; floor tiles and flooring adhesives; vinyl floor sheeting (linoleum); roofing tars, felts, shingles, and patching compounds; duct insulation; duct fire dampers and vibration isolators; fire door cores; electrical wiring coverings; and drywall joint compound.

Before you remove, cut, sand, drill, break or otherwise disturb, damage, or work on or with ACM or suspect ACM materials which have not been sampled in your building, please refer to the Church Asbestos Program Manual, Section 7, "Asbestos Operations and Maintenance (O&M) Program." If you have questions, contact your management. These same policies and precautions refer to all personnel who may be involved in any type of construction, maintenance, or remodeling in this facility.

Should a true emergency occur (such as the falling of textured ACM ceiling material or a ruptured steam or hot water line with ACM thermal insulation), immediately seal off the area and turn off all heating and ventilation to/from the area to prevent the spread of fibers to other parts of the building. Because of the stringent precautions required in handling, removing, and disposing of ACM materials, in no case should building custodians or other unqualified personnel attempt to perform these operations.

Get help resolving asbestos-related problems by contacting your management. They will be able to put you in contact with either Brigham Young University personnel who have been trained and equipped to handle asbestos problems or consultants or contractors whom Brigham Young University has approved for this work.

VI. ACM LOCATION PLANS

July 3, 2006

Mr. Dave Roskelley
R&R Environmental
47 West 9000 South, Unit #2
Sandy, UT 84070

Ref: Batch #70512, Lab #RR15926-RR15969
Received June 23, 2006
Test Report
BYU - Deseret Towers, W Hall
Sampled by Jon Craig, 6/22/06

Dear Mr. Roskelley:

Samples RR15926 through RR15969 have been analyzed by visual estimation based on EPA-600/M4-82-020 December 1982 optical microscopy test method. Appendix "A" contains statements which an accredited laboratory must make to meet the requirements of accrediting agencies. It also contains additional information about the method of analysis. Appendix "A" must be included as an essential part of this test report.

This report may be reproduced but all reproduction must be in full unless written approval is received from the laboratory for partial reproduction. The results of analysis are as follows:

Lab RR15926, Field DTW-01 12" VFT #1, Rm 821
This is brown rubber and limestone with yellow resin mastic on one side. **Asbestos is none detected.**

The mastic is 1% of the sample.

Lab RR15927, Field DTW-02 12" VFT #2, Rm 644
This is **8% chrysotile asbestos** in a tan plastic and limestone tile.

Note: Asbestos is none detected in the black tar mastic.

The tile is greater than 99% of the sample. The mastic is less than 1% of the sample.

Lab RR15928, Field DTW-03 12" VFT #3, Rm 21
This is **8% chrysotile asbestos** in an off-white plastic and limestone tile.

Note: Asbestos is none detected in the black tar mastic.

The tile is 99% of the sample. The mastic is 1% of the sample.

Lab RR15929, Field DTW-04 12" VFT #4, Rm 90
This is an off-white plastic and limestone tile with yellow resin mastic. **Asbestos is none detected.**

The tile is 95% of the sample. The mastic is 5% of the sample.

Lab RR15930, Field DTW-05 RVF #1, Rm 791
This sample contains two types of material: The first type is **less than 1% chrysotile asbestos** in tan rubber and limestone; the second type is yellow resin mastic. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 95% of the sample. The second type is 5% of the sample.

Lab RR15931, Field DTW-06 Cove base #1, Rm 644
This is brown rubber and limestone with brown resin mastic on one side. **Asbestos is none detected.**

The mastic is 2% of the sample.

Lab RR15932, Field DTW-07 Cove base #2, Rm 28
This sample contains two types of material: The first type is off-white rubber and limestone; the second type is yellow resin mastic. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 98% of the sample. The second type is 2% of the sample.

Lab RR15933, Field DTW-08 12" CT #1, Rm 1
This sample contains two types of material: The first type is perlite, 30% plant fiber, and 30% mineral wool in gray binder with a white coating on one side; the second type is brown resin mastic. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 95% of the sample. The second type is 5% of the sample.

Lab RR15934, Field DTW-09 12" CT #2, Rm 128
This is a light gray sample with perlite, 30% plant fiber, and 30% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 2% of the sample.

Lab RR15935, Field DTW-10 2x2 CP #1, Rm 126
This is a light gray sample with perlite, 40% plant fiber, and 15% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 2% of the sample.

Lab RR15936, Field DTW-11 Sink undercoat, Rm 539
This is **5% chrysotile asbestos** in a black limestone binder with mica.

Lab RR15937, Field DTW-12 Sink undercoat, Rm 639
This is **5% chrysotile asbestos** in a black limestone binder with mica.

Lab RR15938, Field DTW-13 Sink undercoat, Rm 739
This is **5% chrysotile asbestos** in a black limestone binder with mica.

Lab RR15939, Field DTW-14 Cloth duct tape, Rm 12
This sample contains two types of material: The first type is white paint with brown particulate; the second type is white micaceous gypsum plaster with 20% crosswoven plant fiber. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab RR15940, Field DTW-15 Fireproofing - Column, Rm 190 C. crawl
This is off-white plaster with vermiculite. **Asbestos is none detected.**

Lab RR15941, Field DTW-16 TSI - End resin, Rm 15
This sample contains three types of material: The first type is off-white paint; the second type is 30% crosswoven plant fiber in white limestone binder; the third type is glasswool with a light coating of yellow resin. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 85% of the sample. The third type is 10% of the sample.

Lab RR15942, Field DTW-17 TCM - AC, Rm 235
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 5% of the sample.

Lab RR15943, Field DTW-18 TCM - AC, Rm 239
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 5% of the sample.

Lab RR15944, Field DTW-19 TCM - AC, Rm 339
This sample contains three types of material: The first type is white paint; the second type is **3% chrysotile asbestos** in white limestone plaster with vermiculite; the third type is white micaceous gypsum plaster. This sample is non-homogeneous.

The first type is 5% of the sample. The second type is 94% of the sample. The third type is 1% of the sample.

Lab RR15945, Field DTW-20 TCM - AC, Rm 392A
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 10% of the sample.

Lab RR15946, Field DTW-21 TCM - AC, Rm 435
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 10% of the sample.

Lab RR15947, Field DTW-22 TCM - AC, Rm 439
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 5% of the sample.

Lab RR15948, Field DTW-23 TCM - AC, Rm 535
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 5% of the sample.

Lab RR15949, Field DTW-24 TCM - AC, Rm 592A
This is **3% chrysotile asbestos** in white limestone plaster with

vermiculite and white paint.

The white paint is 10% of the sample.

Lab RR15950, Field DTW-25 TCM - AC, Rm 636
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 10% of the sample.

Lab RR15951, Field DTW-26 TCM - AC, Rm 690 Lobby
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 10% of the sample.

Lab RR15952, Field DTW-27 TCM - AC, Rm 735
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 10% of the sample.

Lab RR15953, Field DTW-28 TCM - AC, Rm 790 Lobby
This is **3% chrysotile asbestos** in white limestone plaster with vermiculite and white paint.

The white paint is 10% of the sample.

Lab RR15954, Field DTW-29A TCM - KD, Rm 126
This sample contains two types of material: The first type is white paint; the second type is white micaceous limestone plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab RR15955, Field DTW-29B TCM - KD, Rm 126
This sample contains three types of material: The first type is white paint; the second type is white micaceous limestone plaster; the third type is white micaceous gypsum plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 75% of the sample. The third type is 20% of the sample.

Lab RR15956, Field DTW-29C TCM - KD, Rm 126
This sample contains two types of material: The first type is white paint; the second type is white micaceous limestone plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab RR15957, Field DTW-30 Plaster, Rm 15
This sample contains four types of material: The first type is off-white paint; the second type is yellow foam binder; the third type is off-white plaster with sand and vermiculite; the fourth type is off-white plaster with vermiculite. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 3% of the sample. The second type is 2% of the sample. The third type is 60% of the sample. The fourth type is 35% of the sample.

Lab RR15958, Field DTW-31 Plaster, Rm 244
This sample contains two types of material: The first type is off-white paint; the second type is sand in gray plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 10% of the sample. The second type is 90% of the sample.

Lab RR15959, Field DTW-32 Plaster, Rm 344
This sample contains two types of material: The first type is white paint; the second type is gray plaster with sand. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 10% of the sample. The second type is 90% of the sample.

Lab RR15960, Field DTW-33 Plaster, Rm 444
This sample contains two types of material: The first type is white paint; the second type is off-white sandy plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab RR15961, Field DTW-34 Plaster, Rm 544
This sample contains three types of material: The first type is brown resin mastic; the second type is white paint; the third type is off-white plaster with sand. This sample is non-homogeneous.

Asbestos is none detected.

The first type is 1% of the sample. The second type is 5% of the sample. The third type is 94% of the sample.

Lab RR15962, Field DTW-35 Plaster, Rm 691
This sample contains two types of material: The first type is white paint; the second type is off-white plaster with sand. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab RR15963, Field DTW-36 Plaster, Rm 734
This sample contains two types of material: The first type is white paint; the second type is off-white plaster with sand. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab RR15964, Field DTW-37 Wall system, Rm 290 E.
This sample contains white paint, white micaceous limestone joint compound, brown plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The joint compound is less than 1% of the sample. The plant fiber paper is 3% of the sample. The white gypsum plaster is greater than 95% of the sample.

Lab RR15965, Field DTW-38 Wall system, Rm 390 N.
This sample contains white paint, white micaceous limestone joint compounds, brown plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The joint compound is 10% of the sample. The plant fiber paper is 2% of the sample. The white gypsum plaster is 87% of the sample.

Lab RR15966, Field DTW-39 Wall system, Rm 490 S.
This sample contains white paint, white micaceous limestone joint

compound, brown plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The joint compound is 5% of the sample. The plant fiber paper is 2% of the sample. The white gypsum plaster is 92% of the sample.

Lab RR15967, Field DTW-40 Wall system, Rm 590 N.
This sample contains white paint, white micaceous gypsum and limestone joint compounds, brown plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The joint compound is 10% of the sample. The plant fiber paper is 2% of the sample. The white gypsum plaster is 87% of the sample.

Lab RR15968, Field DTW-41 Wall system, Rm 690 W.
This sample contains white paint, white micaceous gypsum joint compound, brown plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The joint compound is 5% of the sample. The plant fiber paper is 2% of the sample. The white gypsum plaster is 92% of the sample.

Lab RR15969, Field DTW-42 Wall system, Rm 790 E.
This sample contains white paint, white micaceous gypsum joint compound, brown plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The joint compound is 8% of the sample. The plant fiber paper is 2% of the sample. The white gypsum plaster is 89% of the sample.

In order to be sure reagents and tools used for analysis are not contaminated with asbestos, blanks are tested. Asbestos was none detected in the blanks tested with this bulk sample set.

Very truly yours,

Steve H. Dixon, President

Analyst: Kai Samuelsen _____

Analyst: Steve H. Dixon _____ Date Analyzed: 6/29/06

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THIS CERTIFIES THAT

Jon Craig

HAS COMPLETED THE REQUISITE TRAINING FOR ASBESTOS ACCREDITATION UNDER TSCA TITLE II

ATTENDED AN ANNUAL REFRESHER COURSE IN

PRACTICES AND PROCEDURES IN
ASBESTOS ABATEMENT

Asbestos Inspector Refresher

DATE: January 6, 2006
NUMBER: [illegible]65
EXPIRES: January 6, 2007
CREDITS: 0.340 CEUs / .50 ABIH CM points

Utah Asbestos Certification

Jon R. Craig
ASB-2934
Inspector (Exp. 01/06/07)

Executive Secretary Utah Air Quality Board

Connie Crandall, MBA, MA
Continuing Education Director

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THIS CERTIFIES THAT

David C. Roskelley

HAS COMPLETED THE REQUISITE TRAINING FOR ASBESTOS ACCREDITATION UNDER TSCA TITLE II

ATTENDED AN ANNUAL REFRESHER COURSE IN

PRACTICES AND PROCEDURES IN
ASBESTOS ABATEMENT

Asbestos Inspector/Management Planner Refresher

California Course Approval Number for Asbestos Inspector Refresher #CA-004-06 and Asbestos Management Planner Refresher #CA-004-08

DATE: November 30, 2005
NUMBER: 350633
EXPIRES: November 30, 2006
CREDITS: 0.680 CEUs / 1.0 ABIH CM points

Connie Crandall, MBA, MA
Continuing Education Director

Utah Asbestos Certification

David C. Roskelley
ASB-1370
Inspector (Exp. 11/30/06)
Management Planner (Exp. 11/30/06)
Supervisor (Exp. 06/03/06)
Project Designer (Exp. 06/01/06)

Executive Secretary Utah Air Quality Board

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AN ASBESTOS SURVEY AND ASSESSMENT FOR THE DESERET TOWERS "V" HALL BRIGHAM YOUNG UNIVERSITY PROVO, UTAH

July 7, 2006

Prepared for:

Kerry J. Smith, CIH
Industrial Hygiene Officer
Risk Management and Safety Department
Brigham Young University
100 TOMH, PO Box 20100
Provo, Utah 84602-0100

Prepared by:
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EXECUTIVE SUMMARY

Asbestos-containing material (ACM) was identified in the Deseret Towers "V" Hall are as follows:

Material	Location	Quantity	% Asbestos	Friable	Condition
Textured Ceiling Material	Floors 2-7	37,000 ft^2	Up to 6% C	Yes	Good to Fair
Vinyl Floor Tile	Stairwell Landings	1,600 ft^2	Assumed	No	Good
Black Mastic	Rooms 28, 29, 90	~1,000 ft^2	>1% C	No	Good
Sink Undercoat	Ironing Room Sinks and Room 134	7 fixtures	Up to 10% C	No	Good
Fire Doors	Throughout Building	>15 doors	Assumed	No	Good
Thermal System Insulation	Basement Mechanicals and various pipe chases (throughout building)	375 Fittings	Up to 5% C	Yes	Good
HVAC Putty	Room 829	<10 ft^2	>1% C	No	Good

C=Chrysotile

Note 1: Every effort was made to identify all asbestos-containing vinyl floor tile within the building. However, any previously unidentified vinyl floor tile encountered during future renovations should be considered asbestos-containing until sampling and analysis proves otherwise.

Note 2: Thermal system insulation samples analyzed from the building contained detectable levels of asbestos. Should major renovations of the thermal system be scheduled, thermal system insulation in the area should be assessed to determine its homogeneity with the sampled materials. It should also be assumed that thermal system insulation existing in certain wall and ceiling locations not identified during the course of this inspection will also require assessment prior to disturbance.

Note 3: No roofing samples were collected during the course of this inspection due to the rubberized (membranous) nature of the roofing material. Future roof renovation work should address asbestos sampling with regards to the roof.

Removal cost estimates (at current dollars) for individual floors and the entire building are outlined in the following table:

Deseret Towers "V" Hall Floor/Location	*Cost for complete abatement (not including renovation or replacement costs)	Estimate of time needed to Complete abatement
Basement/Mechanical Locations	$12,500.00	<1 week
1st Floor	$7,500.00	<1 week
2nd Floor	$35,500.00	1-2 weeks
3rd Floor	$35,500.00	1-2 weeks
4th Floor	$35,500.00	1-2 weeks
5th Floor	$35,500.00	1-2 weeks
6th Floor	$35,500.00	1-2 weeks
7th Floor	$35,500.00	1-2 weeks
Roof/Mechanical Penthouse	$1,000.00	<1 week
****Entire Building**	**$233,500.00**	**9-10 weeks**

* Assuming the entire floor/location would be vacated prior to the start of removal activities.

** This cost estimate is for complete removal of asbestos from the building all at one time.

DESERET TOWERS "V" HALL
DATE OF SURVEY: JUNE 2006
NESHAP - REGULATED
ASBESTOS-CONTAINING MATERIALS (R-ACM)

1. Friable asbestos material (>1% asbestos and can be crumbled, pulverized or reduced to powder by hand pressure)
   - ____Thermal system insulation (TSI)*
   - _X_Textured ceiling material (TCM)*
   - ____Spray-on insulation or fireproofing* (Column Fireproofing)
   - ____Blown-in insulation*
   - ____Ceiling tiles/panels*
   - ____Plaster, gypsum board, gypsum board joint compound*
   - ____Cloth materials*
   - ____Paper materials*
   - ____Electrical wiring insulation*
   - ____Sink undercoating (loose)*
   - ____Other*

2. Category I ACM which has become friable
   - ____Packings
   - ____Gaskets
   - ____Resilient floor coverings (floor tile and sheet vinyl)
   - ____Asphalt roofing products

3. Category I ACM that will be or has been subjected to sanding, grinding, cutting or abrading
   - ____Packings
   - ____Gaskets
   - ____Resilient floor coverings (floor tile and sheet vinyl)
   - ____Asphalt roofing products

4. Category II ACM that has a high probability of becoming or has become friable in the course of demolition or renovation operations
   - ____Asbestos cement materials (transite)*
   - ____Asphalt, tar and rubber-base ACM products other than roofing products*
   - ____Non-asphalt and non-paper roofing products*
   - ____Paint*
   - ____Fire brick and/or mortar*
   - ____Stainless steel sink undercoating (solid)*
   - ____Encapsulated TCM*
   - ____Encapsulated TSI*
   - ____Mastic for floor tile, ceiling tile, cove molding, etc.*
   - ____Other

DESERET TOWERS "V" HALL
DATE OF SURVEY: JUNE 2006
NESHAP NON-REGULATED
ASBESTOS-CONTAINING MATERIAL (N-R-ACM)

1. ≥ 1% asbestos

2. Category I Non-friable (cannot be crumbled, pulverized, or reduced to powder by hand pressure) ACM with >1% asbestos by new PLM procedure
   _____Packings
   _____Gaskets
   __X__Resilient floor coverings (floor tile)
   _____Asphalt roofing products

3. Category II Non-friable ACM with >1% asbestos by new PLM procedure (Category includes items meeting Category I definition but not specifically listed in that category)
   _____Asbestos cement materials (transite)* (Fume hoods, counter tops, and window panels)
   __X__Asphalt, tar and rubber-base ACM products other than roofing products (HVAC Putty)*
   _____Non-asphalt and non-paper roofing products*
   _____Paint*
   _____Fire brick and/or mortar*
   __X__Sink undercoating (solid)*
   __X__Mastic for floor tile, ceiling tile, cove molding, etc.*
   __X__Other* (Fire door)

Notes:
1. (*) denotes R & R's interpretation of materials included in this category.
2. New PLM procedure is outlined in Appendix A, Subpart F, 40 CFR, Part 783, Section 1, Polarized Light Microscopy.
3. The Environmental Protection Agency (EPA) National Emission Standard for Hazardous Air Pollutants (NESHAP) asbestos revision as outlined in 40 CFR, Part 61, became effective November 20, 1990. The asbestos classification system outlined in the revision and included in this section is dynamic in nature. Asbestos materials classified as "NON-REGULATED" at the time of the survey may become "REGULATED" due to ongoing or planned maintenance, renovation or demolition actions which can transform a material containing greater than 1% asbestos from a "non-friable" and NON-REGULATED to a friable and REGULATED condition. Classification of ACM in this section and in the executive summary of this report is, therefore, based on the observations of the surveyor at the time of the survey and may or may not be appropriate at later dates.
4. Maintenance, renovation, demolition, weathering, normal wear, water or other damage can alter the "NON-REGULATED" status of materials, and necessitate precautions required for handling them as "REGULATED" asbestos-materials.

AN ASBESTOS SURVEY AND ASSESSMENT
AT THE
DESERET TOWERS "V" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

During the month of June 2006, R & R Environmental, Inc. (R & R) of Sandy, Utah, conducted an asbestos survey and assessment at Brigham Young University's Deseret Towers "V" Hall in Provo, Utah. Bulk samples of suspect asbestos-containing materials were collected and analyzed. The condition of all friable and non-friable asbestos-containing materials was assessed. The following accredited inspector conducted the survey and assessment.

_____ Date: _____

David C. Roskelley, MSPH, CIH, CSP
AHERA Inspector #5 PSI 65461 I
State of Utah Inspector #ASB-1370 (1408)
Certified Safety Professional #15774
Certified Industrial Hygienist #8529

AN ASBESTOS SURVEY AND ASSESSMENT
FOR THE
DESERET TOWERS "V" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

INTRODUCTION AND BACKGROUND

During the month of June 2006, R & R Environmental, Inc. (R & R) of Sandy, Utah, conducted an asbestos survey and assessment at Brigham Young University's Deseret Towers "V" Hall in Provo, Utah. The purpose of the survey was to identify materials within and on the building that contain asbestos and to recommend appropriate response actions.

Brigham Young University intends that no occupant or worker inside a Brigham Young University facility shall be exposed to airborne asbestos fibers at concentrations potentially hazardous to health, and has initiated a program to abate potential asbestos problems in all its facilities.

METHODS AND MATERIALS

A survey of the facility was conducted to observe, identify and locate: surfacing materials, pipe, boiler and tank insulation, ceiling and floor tiles, siding and roofing materials suspected of containing asbestos. All areas of the building accessible to observation were inspected.

Bulk samples of suspect materials were collected and microscopically analyzed for asbestos content by Dixon Information Inc., in Salt Lake City, Utah. Dixon participates in the National Institute for Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP).

Asbestos percentages were estimated utilizing the polarized light microscopy (PLM) and dispersion staining methods as prescribed by NIOSH.

BUILDING DESCRIPTION AND OBSERVATIONS

Deseret Towers "V" Hall, Provo, Utah

STRUCTURE: Approximately 50,000 square foot block and brick, and re-enforced concrete building

INTERIOR WALLS: Concrete in basement, block and brick, with some wood-framing throughout upper floors.

ATTIC: None

CRAWL SPACE: Pipe chases in various basement and interior wall and ceiling locations

FIRE DOOR: Throughout building

HEATING SYSTEM: Boiler/Radiator

CULINARY WATER LINES: ACM with mudded elbows, fittings, joints, etc.

CEILING FINISHES AND SUBSTRATE: ACM Textured Ceiling Material on upper floors, troweled-on ACM knock-down texturing on the first floor, and non-ACM ceiling tiles or unfinished concrete in the basement.

FLOOR COVERINGS AND SUBSTRATE: Concrete, ACM vinyl floor tile and mastic or carpet on concrete

PEAKED ROOF: None

FLAT ROOF: Rubberized membranous roof layer

INACCESSIBLE AREAS: Certain locations above ceilings and pipe chases throughout the building

ADDITIONAL NOTES AND OBSERVATIONS: See Executive Summary

RESULTS

Results of the laboratory analyses of the bulk samples collected at the Deseret Towers "V" Hall are summarized in Table 1 below.

Table 1. Bulk Sample Results
Deseret Towers "V" Hall

Area Sample No.	Material Lab Results	Location
	9" Vinyl Floor Tile/Mastic	
DTV-01	None Detected, Assumed	Room 111
DTV-02	None Detected, Assumed	Room 291
DTV-03	None Detected, Assumed	Room 492
	12" Vinyl Floor Tile/Mastic	
DTV-04	None Detected	Room 90
DTV-05	None Detected (tile) >1% C (mastic)	Room 90
DTV-06	None Detected	Room 90
DTV-07	None Detected	Room 592
	Covebase	
DTV-08	None Detected	Room 344
DTV-09	None Detected	Room 644
	Stair Run/Rise	
DTV-10	None Detected	Room 692
DTV-11	None Detected	Room 692
	12" Ceiling Tile	
DTV-12	None Detected	Room 126
	2 x 2 Ceiling Panel	
DTV-13	None Detected	Room 126
	Sink Undercoat	
DTV-14	3% C	Room 134
DTV-15	10% C	Room 239
DTV-16	10% C	Room 539

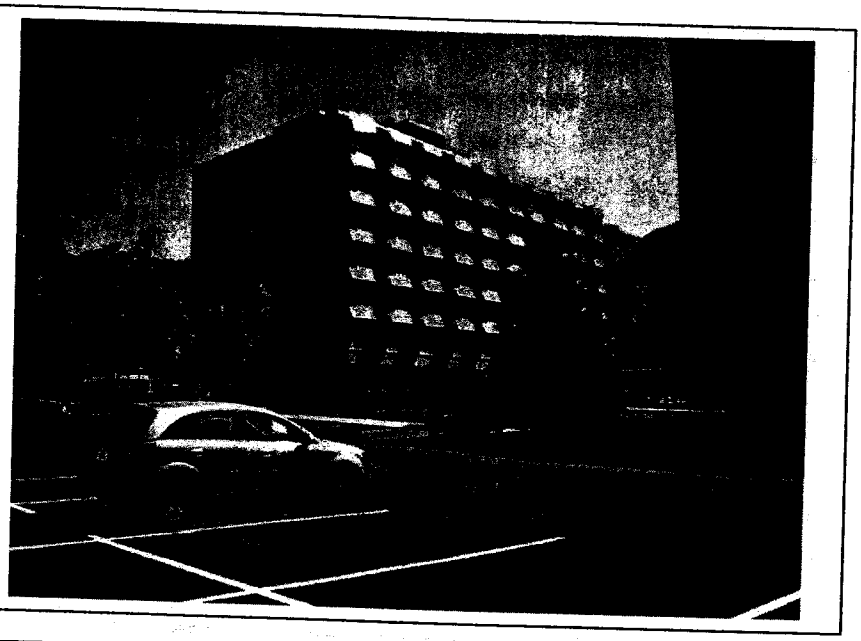
Area Sample No.	Material Lab Results	Location
	HVAC Putty	
DTV-17	3% C	Room 829
	Plaster	
DTV-18	None Detected	Room 10
DTV-19	None Detected	Room 46
DTV-20	None Detected	Room 47
DTV-21A	None Detected	Room 143
DTV-21B	None Detected	Room 137
DTV-21C	None Detected	Room 131
	Textured Ceiling Material, Acoustical	
DTV-22	2% C	Room 219
DTV-23	3% C	Room 317
DTV-24	3% C	Room 490 North
DTV-25	3% C	Room 521
DTV-26	3% C	Room 590 North
DTV-27	3% C	Room 605
DTV-28	3% C	Room 613
DTV-29	3% C	Room 703
DTV-30	3% C	Room 735
DTV-31	3% C	Room 790 South
	Textured Ceiling Material, Troweled	
DTV-32A	None Detected	Room 126
DTV-32B	None Detected	Room 126
DTV-32C	None Detected	Room 126
	Fireproofing	
DTV-33A	None Detected	1st Floor Ceiling Crawl
DTV-33B	None Detected	1st Floor Ceiling Crawl
DTV-33C	None Detected	1st Floor Ceiling Crawl

Area Sample No.	Material Lab Results	Location
	Wall System/Fireproofing, Columns	
DTV-34A	0.8% Chrysotile	Room 334
DTV-34B	0.8% Chrysotile	Room 534
DTV-34C	0.8% Chrysotile	Room 734
	Thermal System Insulation	
DTV-35	None Detected	Room 15, Tank
DTV-36	3% Chrysotile	Room 41
DTV-37	5% Chrysotile	Room 44
DTV-38	3% Chrysotile	Ceiling Crawlspace
DTV-39	3% Chrysotile	Ceiling Crawlspace
DTV-40	3% Chrysotile	Room 15, End Resin
DTV-41	3% Chrysotile	Room 15, Tank
DTV-42	8% Chrysotile	Room 207
DTV-43	3% Chrysotile	Room 234
DTV-44	5% Chrysotile	Room 334
DTV-45	3% Chrysotile	Room 441
DTV-46	5% Chrysotile	Room 534
DTV-47	8% Chrysotile	Room 341
DTV-48	5% Chrysotile	Room 634
DTV-49	5% Chrysotile	Room 641
DTV-50	3% Chrysotile	Room 741

PHOTO LOG

1. **Exterior view of building looking Noutheast**
2. **Textured ceiling material throughout the building contains asbestos**
3. **Vinyl floor tile on stairway landings contains asbestos**
4. **Sink undercoating in the ironing room area contains asbestos**
5. **Sink undercoating in the first floor manager's residence contains asbestos**
6. **Thermal System Insulation mudded fittings throughout the building contains asbestos**
7. **Thermal System Insulation mudded fittings throughout the building contains asbestos**
8. **Thermal System Insulation mudded fittings throughout the building contains asbestos**

PHOTO 1



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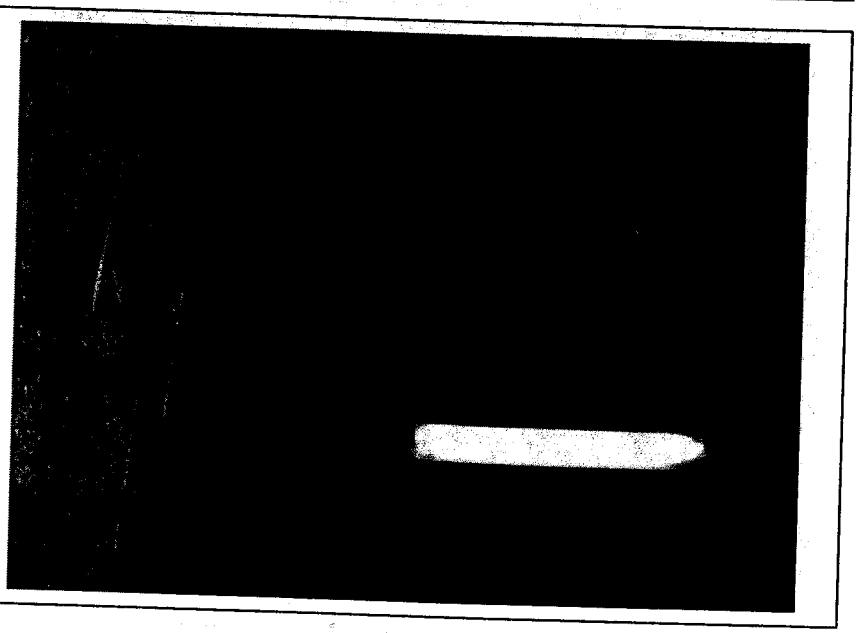

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PROJECT NO:		
DESIGNED BY:	SCALE:	REVIEWED BY:
DRAWN BY:	DATE:	FILE:

SITE PHOTOGRAPHS

AN ASBESTOS SURVEY AND ASSESSMENT

DESERET TOWERS "V" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

PHOTO 3

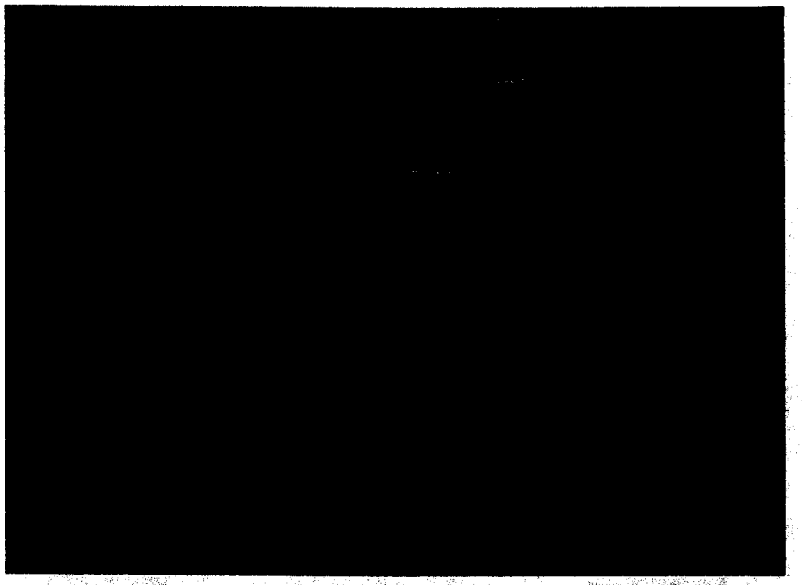
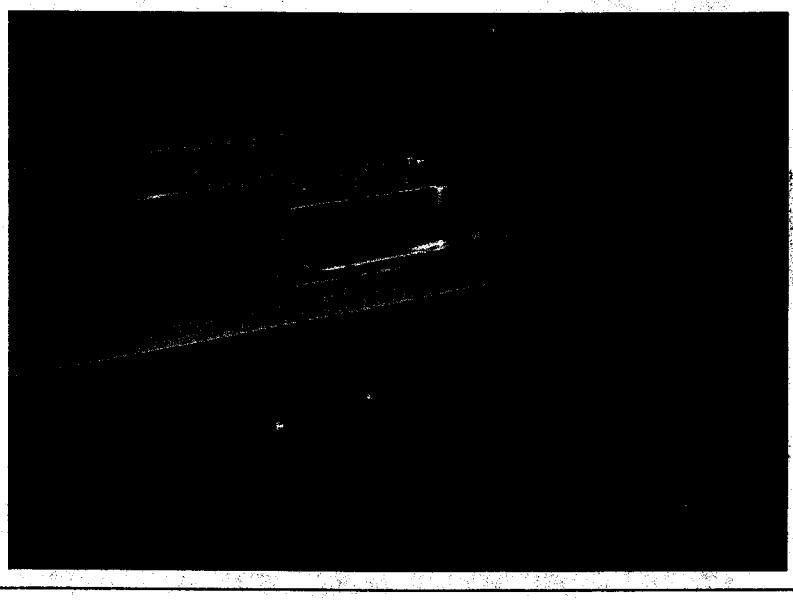


PHOTO 4



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SITE PHOTOGRAPHS

AN ASBESTOS SURVEY AND ASSESSMENT

DESERET TOWERS "V" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

PHOTO 5

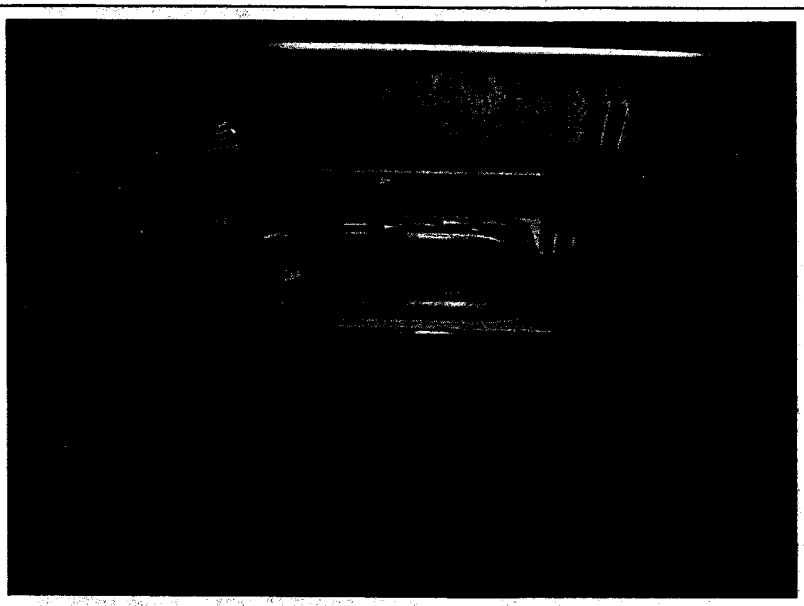

PHOTO 6

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DESIGNED BY:	SCALE:	REVIEWED BY:
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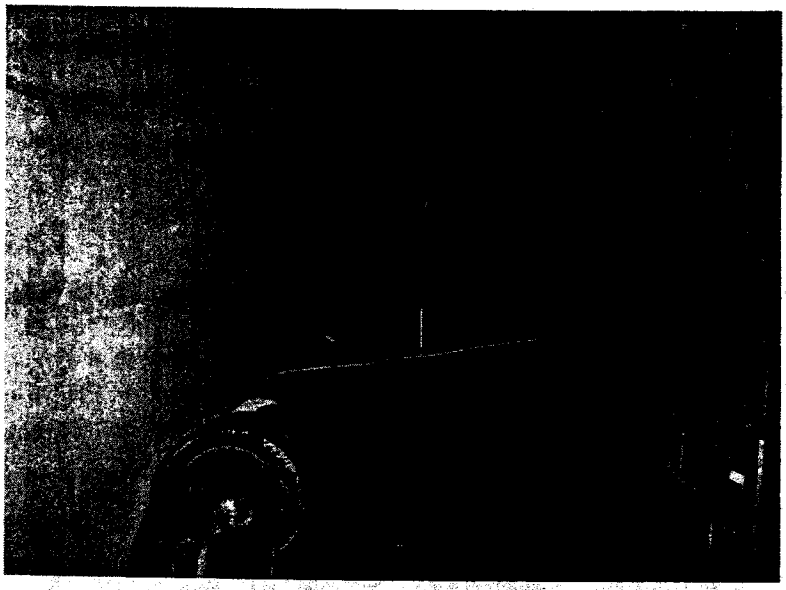
SITE PHOTOGRAPHS

AN ASBESTOS SURVEY AND ASSESSMENT

DESERET TOWERS "V" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

PHOTO 7



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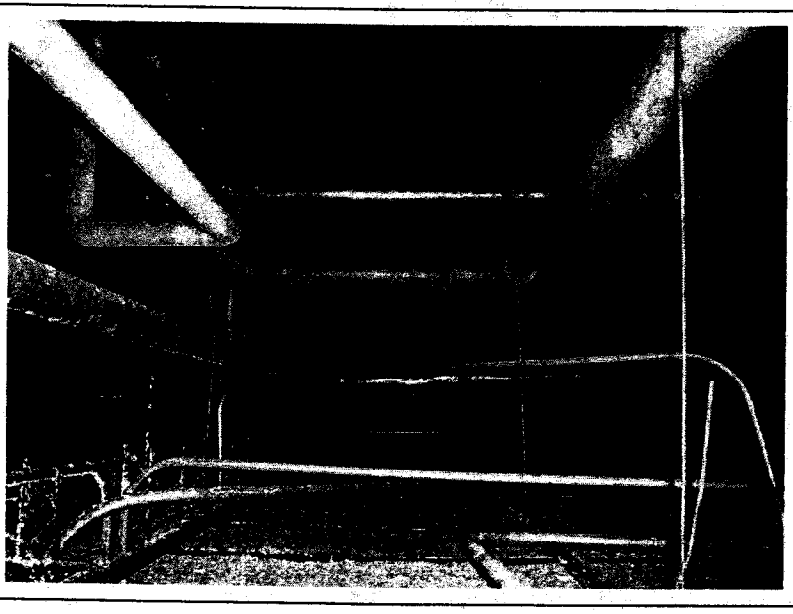

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PROJECT NO:		
DESIGNED BY:	SCALE:	REVIEWED BY:
DRAWN BY:	DATE:	FILE:

SITE PHOTOGRAPHS

AN ASBESTOS SURVEY AND ASSESSMENT

DESERET TOWERS "V" HALL
BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

Asbestos Management Plan

for the

Deseret Towers "V" Hall
Brigham Young University
Provo, Utah

July 31, 2006

Status:
- ☐ Surveyed -- No Asbestos-Containing Material (ACM)
- ☒ Surveyed -- ACM
- ☐ Surveyed -- ACM (Partial Removal)
- ☐ Surveyed -- ACM (Complete Removal)

Prepared by
R & R Environmental, Inc.
47 West 9000 South, Suite #2
Sandy, Utah 84070
(801) 541-1035

Inspector/Reviewer

David C. Roskelley, MSPH, CIH, CSP
AHERA Management Planner #960103
State of Utah Mangement Planner #ASB-1370 (2304)
Certified Safety Professional #15774
Certified Industrial Hygienist #8529

I. PURPOSE

Information in this document applies to Brigham Young University employees and any other personnel involved in construction, maintenance, or remodeling in this facility. A copy of this plan should be readily available to Brigham Young University employees in their work area.

Brigham Young University's asbestos program goals are to:

- Inspect buildings for asbestos and establish management plans.
- Manage asbestos "in place" when possible to do so without endangering health or the environment.
- Remove (abate) asbestos during renovations or demolitions.
- Remove (abate) damaged asbestos when discovered.
- Train appropriate employees concerning asbestos awareness, operations and maintenance practices and asbestos regulations.

Custodial personnel and others doing maintenance and repair work in the facility should acquaint themselves with the contents of this notification. They should pay particular attention to the survey results and the list of suspect asbestos materials (Sections III and IV).

In the future, care should be taken to ensure that no asbestos-containing construction or patching materials are used in this building.

II. BACKGROUND

Asbestos is a naturally occurring mineral. It is distinguished from other minerals by the fact that its crystals form into long thin fibers. Asbestos has proven well-suited for many uses in the construction trades because of its unique properties -- it does not burn, it is strong, it is a good insulator of heat and electricity, and it is not broken down by chemicals. Asbestos fibers become a significant health concern when they are inhaled. Exposure to asbestos fibers has been linked to *asbestosis* (scarring [fibrosis] of the lung), *lung cancer* (malignant tumor of the bronchial covering), *mesothelioma* (cancer of the chest cavity lining), and other diseases of the lung and chest cavity.

Brigham Young University intends that no occupant or worker inside of a Brigham Young University facility should be exposed to airborne asbestos fibers at concentrations potentially hazardous to health, and has initiated a program to manage potential asbestos problems in its facilities. Procedures outlined in this notification should be followed. Only qualified personnel who have been properly trained and equipped are authorized to handle or remove ACM.

This notification is based primarily on the asbestos inspection completed at the facility in September, 2003 by David C. Roskelley, Certified Safety Professional, of R & R Environmental, Inc. A summary of the inspection findings, including building locations where ACM was found, is included in this document. A copy of the entire asbestos inspection report may be obtained by contacting R&R or the Risk Management & Safety office.

III. SPECIFIC LOCATIONS OF ASBESTOS-CONTAINING MATERIAL (ACM)

The following summary tables list the specific locations where ACM was identified in the Deseret Towers "V" Hall. The tables also list the type and quantity of construction materials containing the asbestos. They may also list the percentage and specific types of asbestos (Chrysotile, Amosite, Crocidolite, Anthophyllite, Tremolite, or Actinolite) in the material.

Table 1. Asbestos-Containing Material
Deseret Towers "V" Hall

Material	Location	Quantity	% Asbestos	Friable	Condition
Textured Ceiling Material	Floors 2-7	37,000 ft^2	Up to 6% C	Yes	Good to Fair
Vinyl Floor Tile	Stairwell Landings	1,600 ft^2	Assumed	No	Good
Black Mastic	Rooms 28, 29, 90	~1,000 ft^2	>1% C	No	Good
Sink Undercoat	Ironing Room Sinks Room 134	7 fixtures	Up to 10% C	No	Good
Fire Doors	Throughout Building	>15 doors	Assumed	No	Good
Thermal System Insulation	Basement Mechanicals and various pipe chases (throughout building)	335 Fittings	Up to 5% C	Yes	Good
HVAC Putty	Room 829	<10 ft^2	>1% C	No	Good

C=Chrysotile

Note 1: Every effort was made to identify all asbestos-containing vinyl floor tile within the building. However, any previously unidentified vinyl floor tile encountered during future renovations should be considered asbestos-containing until sampling and analysis proves otherwise.

Note 2: Thermal system insulation samples analyzed from the building contained detectable levels of asbestos. Should major renovations of the thermal system be scheduled, thermal system insulation in the area should be assessed to determine its homogeneity with the sampled materials. It should also be assumed that thermal system insulation existing in certain wall and ceiling locations not identified during the course of this inspection will also require assessment prior to disturbance.

Note 3: No roofing samples were collected during the course of this inspection due to the rubberized (membranous) nature of the roofing material. Future roof renovation work should address asbestos sampling with regards to the roof.

IV. BULK SAMPLING RESULTS

Representative samples of accessible building materials suspected of containing asbestos were collected and forwarded to an accredited laboratory for analysis. Samples were analyzed using the National Institute for Occupational Safety and Health (NIOSH) approved polarizing light microscopy methods. All materials with content greater than 1% are identified as ACM.

RESULTS

See Table 2 on the following pages for results of the laboratory analyses of the bulk samples collected at the Deseret Towers "V" Hall.

Table 2. Bulk Sample Results
Deseret Towers "V" Hall

Area Sample No.	Material Lab Results	Location
	9" Vinyl Floor Tile/Mastic	
DTV-01	None Detected, Assumed	Room 111
DTV-02	None Detected, Assumed	Room 291
DTV-03	None Detected, Assumed	Room 492
	12" Vinyl Floor Tile/Mastic	
DTV-04	None Detected	Room 90
DTV-05	None Detected (tile) >1% C (mastic)	Room 90
DTV-06	None Detected	Room 90
DTV-07	None Detected	Room 592
	Covebase	
DTV-08	None Detected	Room 344
DTV-09	None Detected	Room 644
	Stair Run/Rise	
DTV-10	None Detected	Room 692
DTV-11	None Detected	Room 692
	12" Ceiling Tile	
DTV-12	None Detected	Room 126
	2 x 2 Ceiling Panel	
DTV-13	None Detected	Room 126
	Sink Undercoat	
DTV-14	3% C	Room 134

Area Sample No.	Material Lab Results	Location
	Sink Undercoat (cont.)	
DTV-15	10% C	Room 239
DTV-16	10% C	Room 539
	HVAC Putty	
DTV-17	3% C	Room 829
	Plaster	
DTV-18	None Detected	Room 10
DTV-19	None Detected	Room 46
DTV-20	None Detected	Room 47
DTV-21A	None Detected	Room 143
DTV-21B	None Detected	Room 137
DTV-21C	None Detected	Room 131
	Textured Ceiling Material, Acoustical	
DTV-22	2% C	Room 219
DTV-23	3% C	Room 317
DTV-24	3% C	Room 490 North
DTV-25	3% C	Room 521
DTV-26	3% C	Room 590 North
DTV-27	3% C	Room 605
DTV-28	3% C	Room 613
DTV-29	3% C	Room 703
DTV-30	3% C	Room 735
DTV-31	3% C	Room 790 South
	Textured Ceiling Material, Troweled	
DTV-32A	None Detected	Room 126
DTV-32B	None Detected	Room 126
DTV-32C	None Detected	Room 126
	Fireproofing	
DTV-33A	None Detected	1st Floor Ceiling Crawl

Area Sample No.	Material Lab Results	Location
	Fireproofing (cont.)	
DTV-33B	None Detected	1st Floor Ceiling Crawl
DTV-33C	None Detected	1st Floor Ceiling Crawl
	Wall System/Fireproofing, Columns	
DTV-34A	0.8% Chrysotile	Room 334
DTV-34B	0.8% Chrysotile	Room 534
DTV-34C	0.8% Chrysotile	Room 734
	Thermal System Insulation	
DTV-35	None Detected	Room 15, Tank
DTV-36	3% Chrysotile	Room 41
DTV-37	5% Chrysotile	Room 44
DTV-38	3% Chrysotile	Basement Attic
DTV-39	3% Chrysotile	Basement Attic
DTV-40	3% Chrysotile	Room 15, End Resin
DTV-41	3% Chrysotile	Room 15, Tank
DTV-42	8% Chrysotile	Room 207
DTV-43	3% Chrysotile	Room 234
DTV-44	5% Chrysotile	Room 334
DTV-45	3% Chrysotile	Room 441
DTV-46	5% Chrysotile	Room 534
DTV-47	8% Chrysotile	Room 341
DTV-48	5% Chrysotile	Room 634
DTV-49	5% Chrysotile	Room 641
DTV-50	3% Chrysotile	Room 741

V. POLICY AND PROCEDURES

The Church's asbestos materials policy is discussed in the Church Asbestos Program Manual, Section 7, "Asbestos Operations and Maintenance (O&M) Program." Brigham Young University employees who may be working near asbestos should receive at least two hours of asbestos awareness training and follow the work practices in the O&M Program.

The specific locations in this building where ACM has been identified are in Section III of this notification. While every attempt was made to conduct a thorough survey of the building, it is possible that some suspect asbestos materials may have been overlooked because they were inaccessible, (under furnaces, or inside walls, attics, or crawlspaces with no apparent access points) or not commonly considered by the consultant at the time of the survey to be suspect asbestos-containing construction materials.

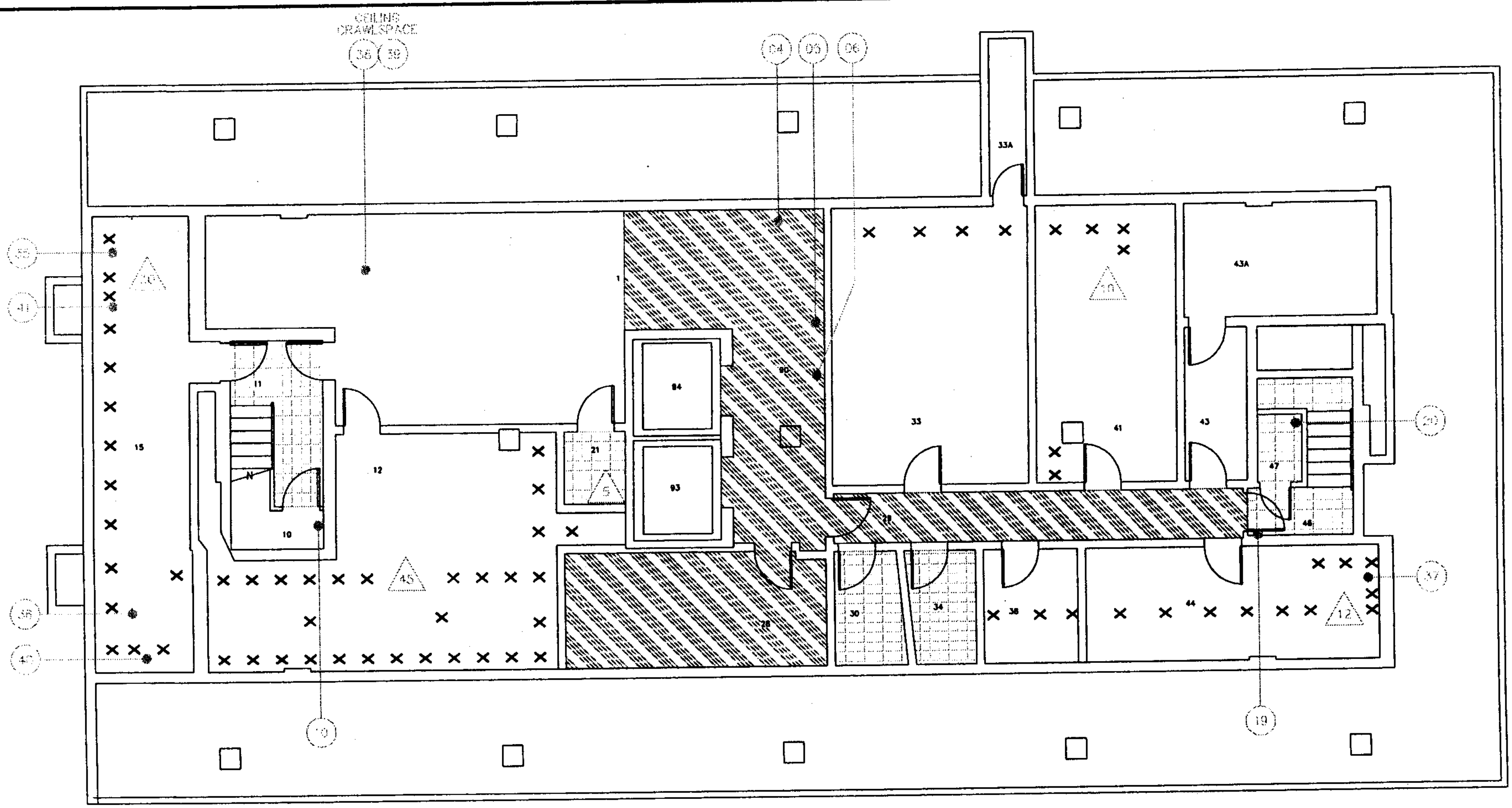
Typical suspect materials included pipe, boiler, and tank insulation; sprayed or trowelled-on ceiling and wall coatings; ceiling tiles and adhesives; asbestos-cement (Transite) panels and pipes; floor tiles and flooring adhesives; vinyl floor sheeting (linoleum); roofing tars, felts, shingles, and patching compounds; duct insulation; duct fire dampers and vibration isolators; fire door cores; electrical wiring coverings; and drywall joint compound.

Before you remove, cut, sand, drill, break or otherwise disturb, damage, or work on or with ACM or suspect ACM materials which have not been sampled in your building, please refer to the Church Asbestos Program Manual, Section 7, "Asbestos Operations and Maintenance (O&M) Program." If you have questions, contact your management. These same policies and precautions refer to all personnel who may be involved in any type of construction, maintenance, or remodeling in this facility.

Should a true emergency occur (such as the falling of textured ACM ceiling material or a ruptured steam or hot water line with ACM thermal insulation), immediately seal off the area and turn off all heating and ventilation to/from the area to prevent the spread of fibers to other parts of the building. Because of the stringent precautions required in handling, removing, and disposing of ACM materials, in no case should building custodians or other unqualified personnel attempt to perform these operations.

Get help resolving asbestos-related problems by contacting your management. They will be able to put you in contact with either Brigham Young University personnel who have been trained and equipped to handle asbestos problems or consultants or contractors whom Brigham Young University has approved for this work.

VI. ACM LOCATION PLANS



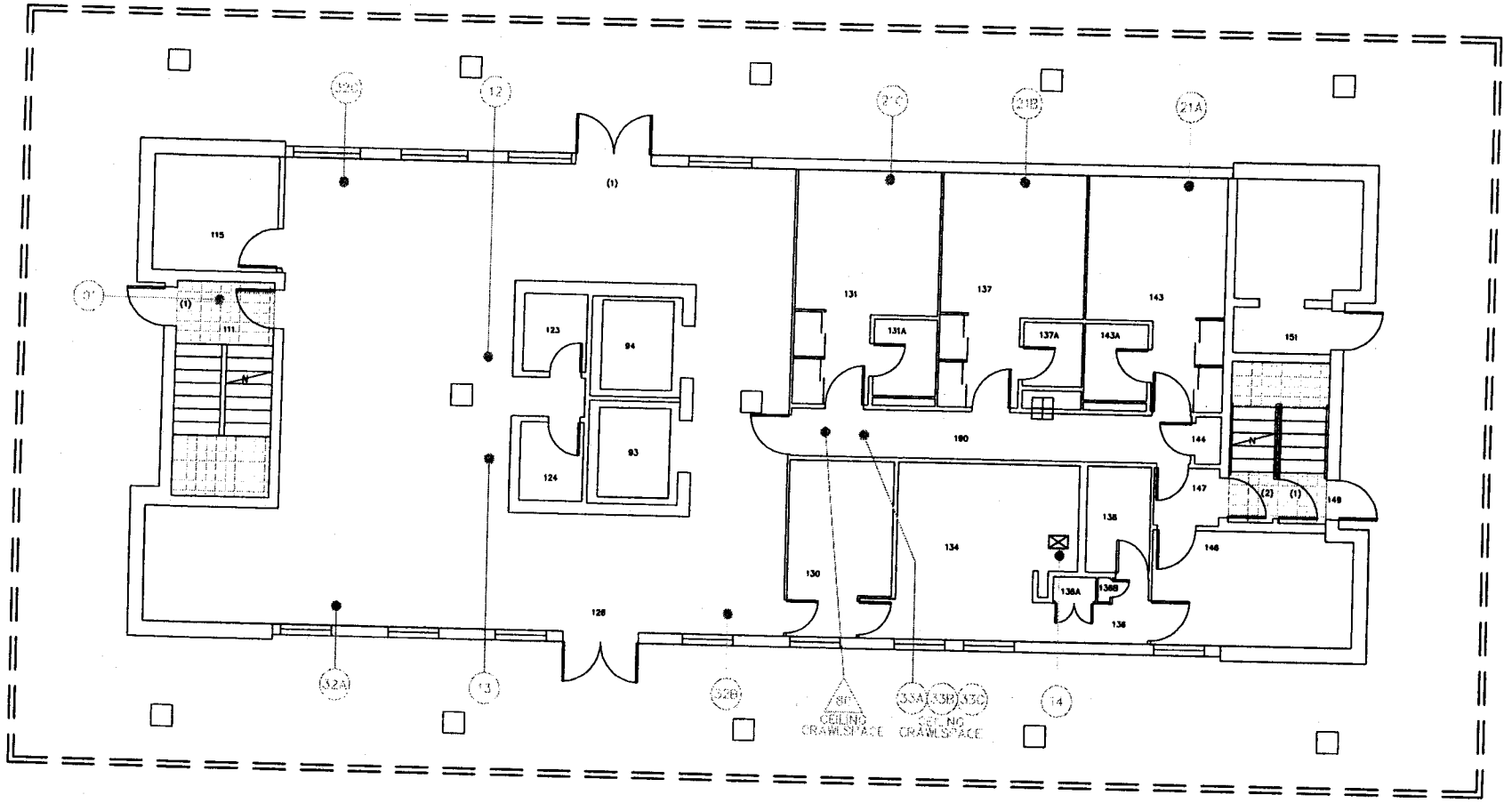
LEGEND

- (##) = SAMPLE LOCATION/ NUMBER
- △## = NUMBER OF THERMAL SYSTEM INSULATION FITTINGS IN THAT LOCATION
- ▭ = VINYL FLOOR TILE
- ▨ = MASTIC ONLY
- XXX = THERMAL SYSTEM INSULATION, RUNS AND FITTINGS

CAD DATABASE
Date 4/3/2000

DT V
BASEMENT

Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building



LEGEND

(##) = SAMPLE LOCATION/ NUMBER

(##) = NUMBER OF THERMAL SYSTEM INSULATION FITTINGS IN THAT LOCATION

= VINYL FLOOR TILE

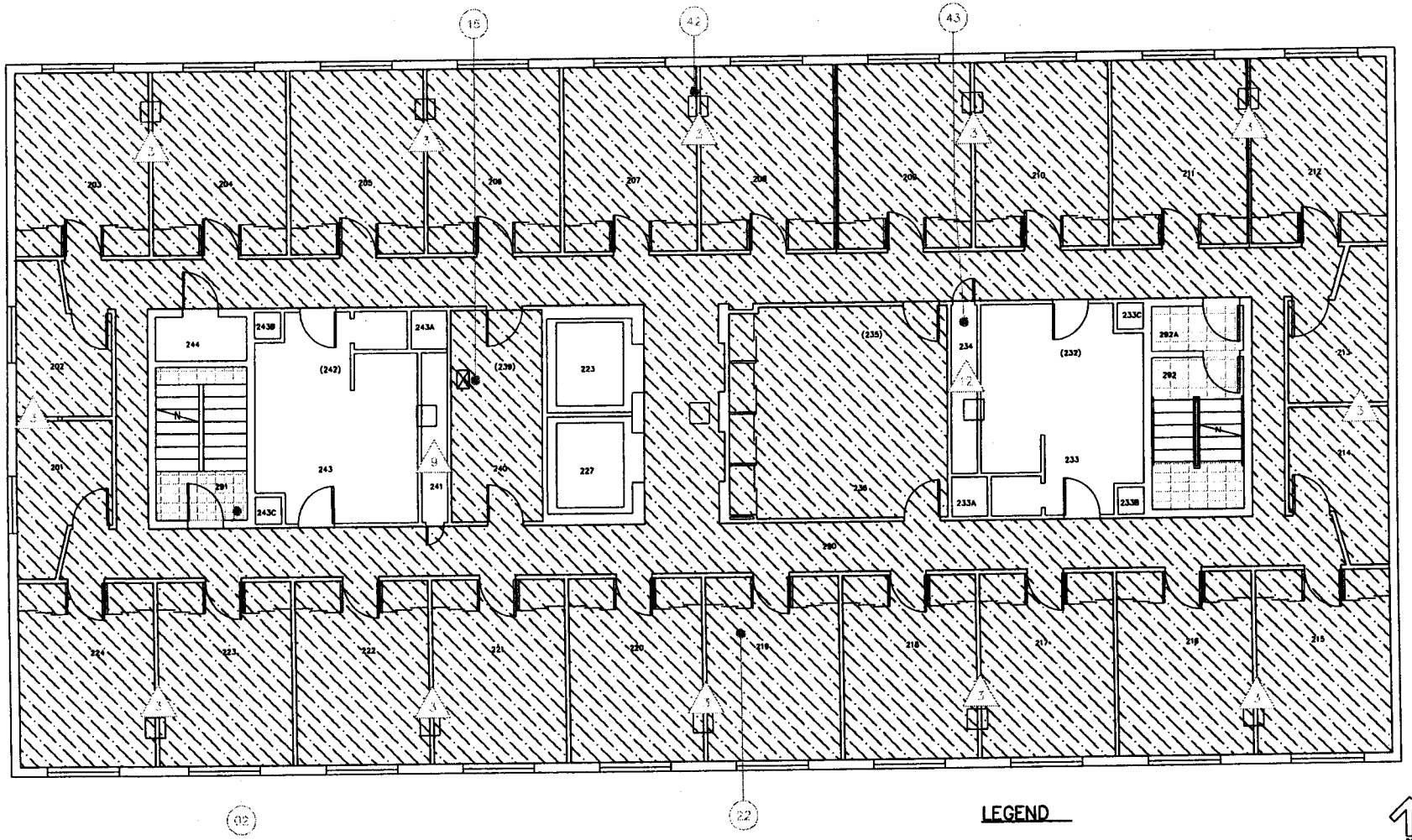
= SINK UNDERCOAT

N

Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building

CAD DATABASE
Date 10/20/91

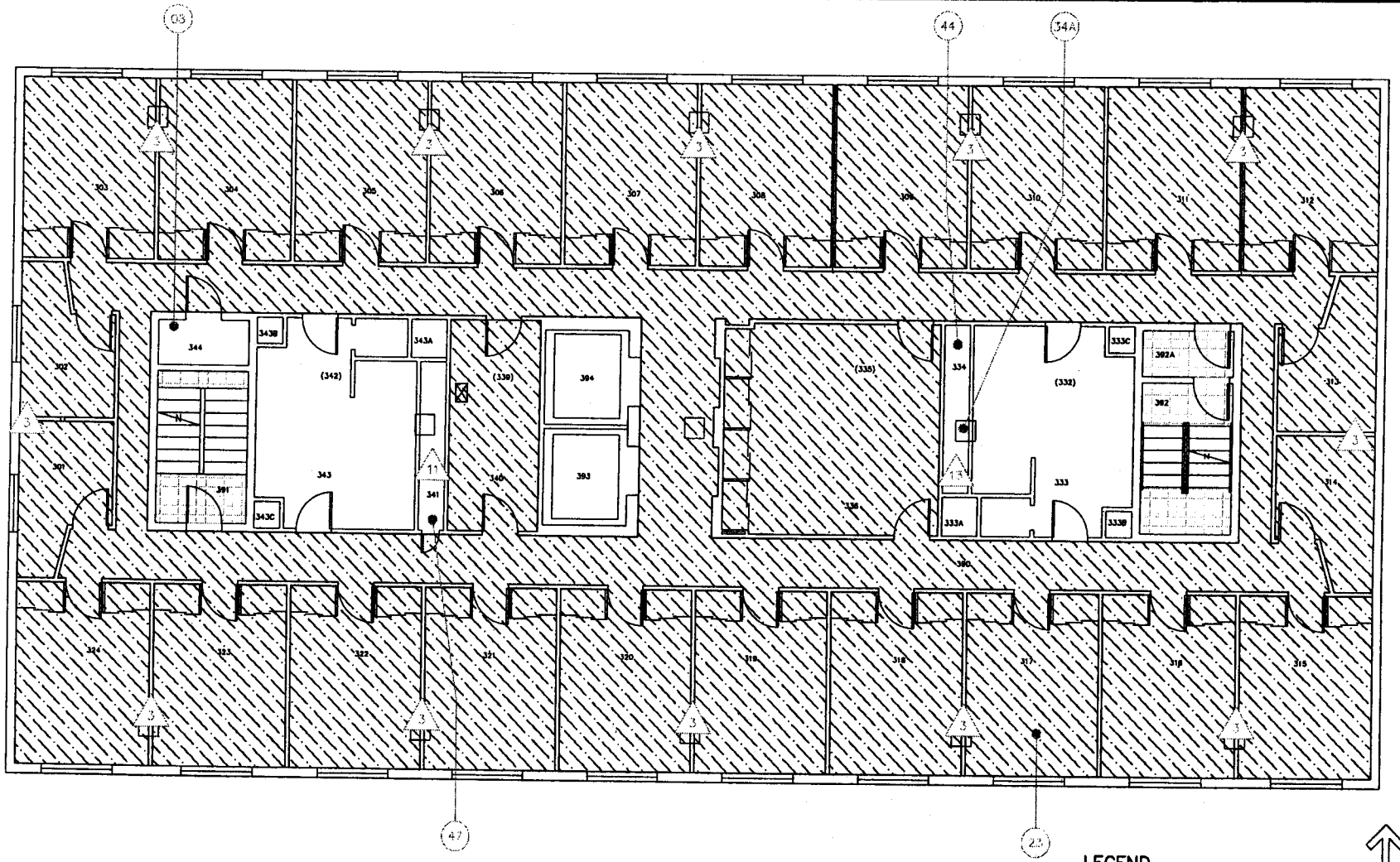
DT V
1ST FLOOR



DT V
2ND FLOOR

CAD DATABASE
Date 10/10/91

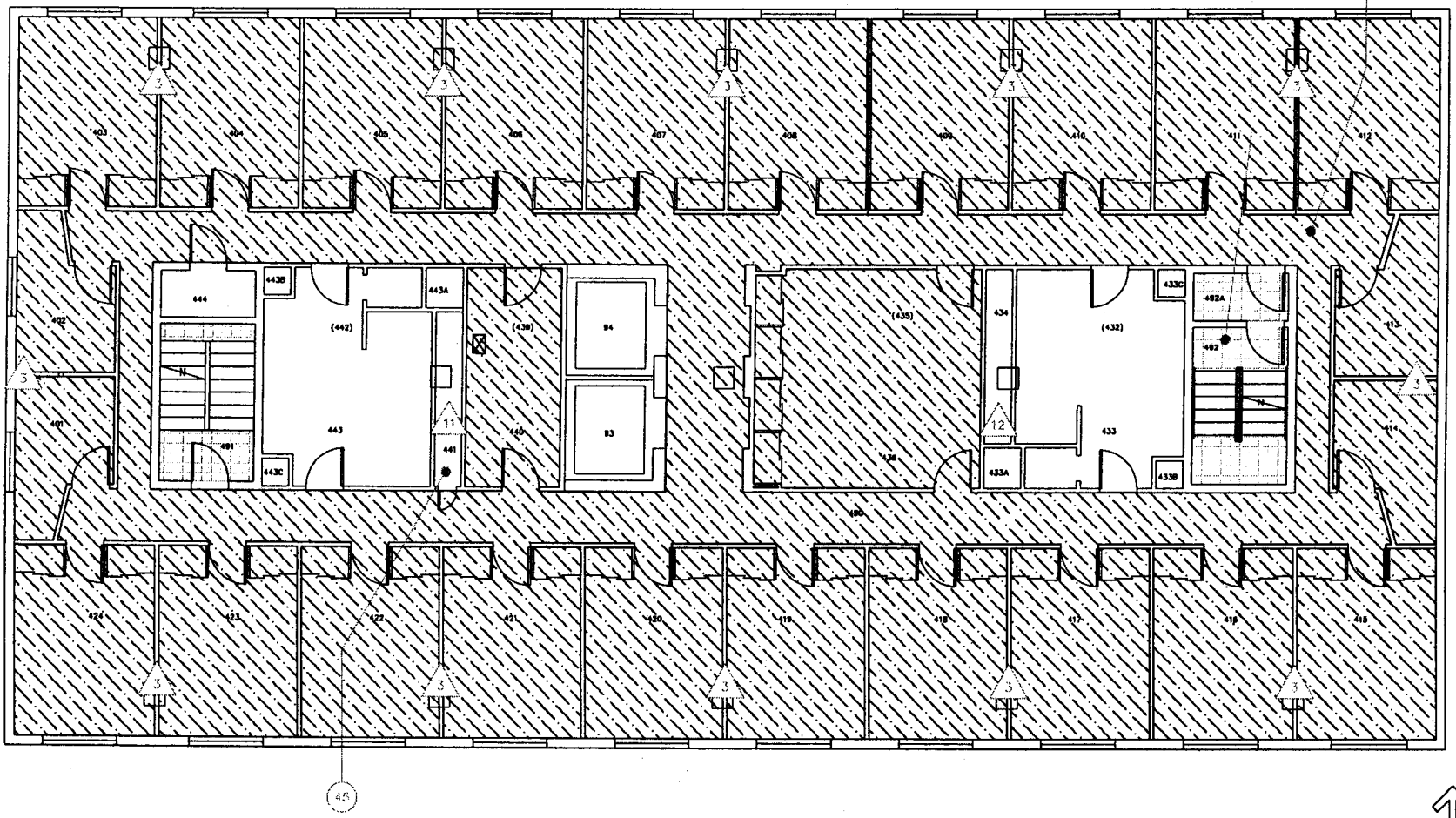
Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building



CAD DATABASE
Date 7/2/01

DT V
3RD FLOOR

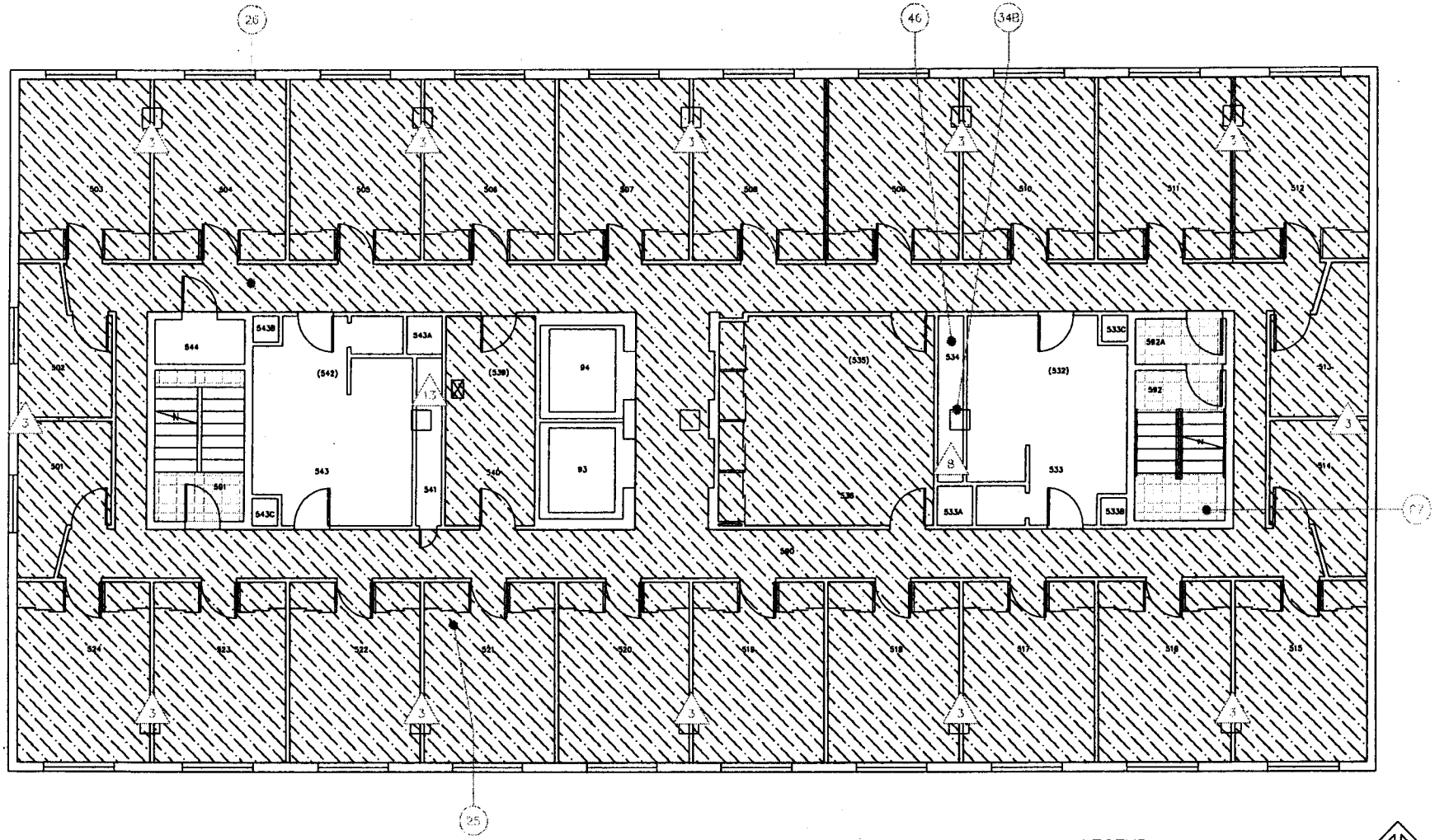
Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building



DT V
4TH FLOOR

CAD DATABASE
Date 10/19/91

Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building



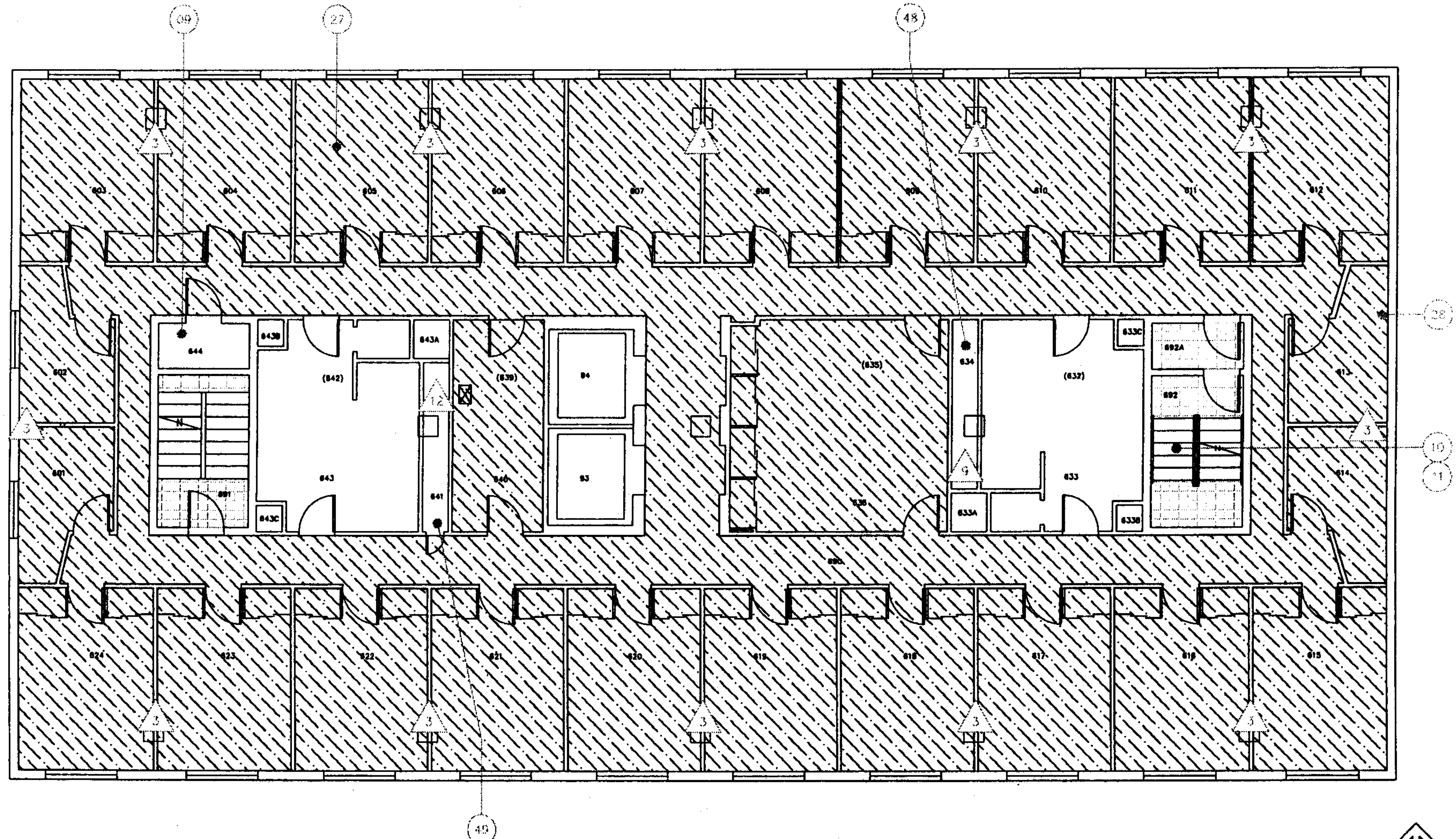
LEGEND

- (##) = SAMPLE LOCATION/ NUMBER
- ## = NUMBER OF THERMAL SYSTEM INSULATION FITTINGS IN THAT LOCATION
- = VINYL FLOOR TILE
- = TEXTURED CEILING MATERIAL
- = SINK UNDERCOAT

DT V
5TH FLOOR

CAD DATABASE
Date 10/10/01

Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building



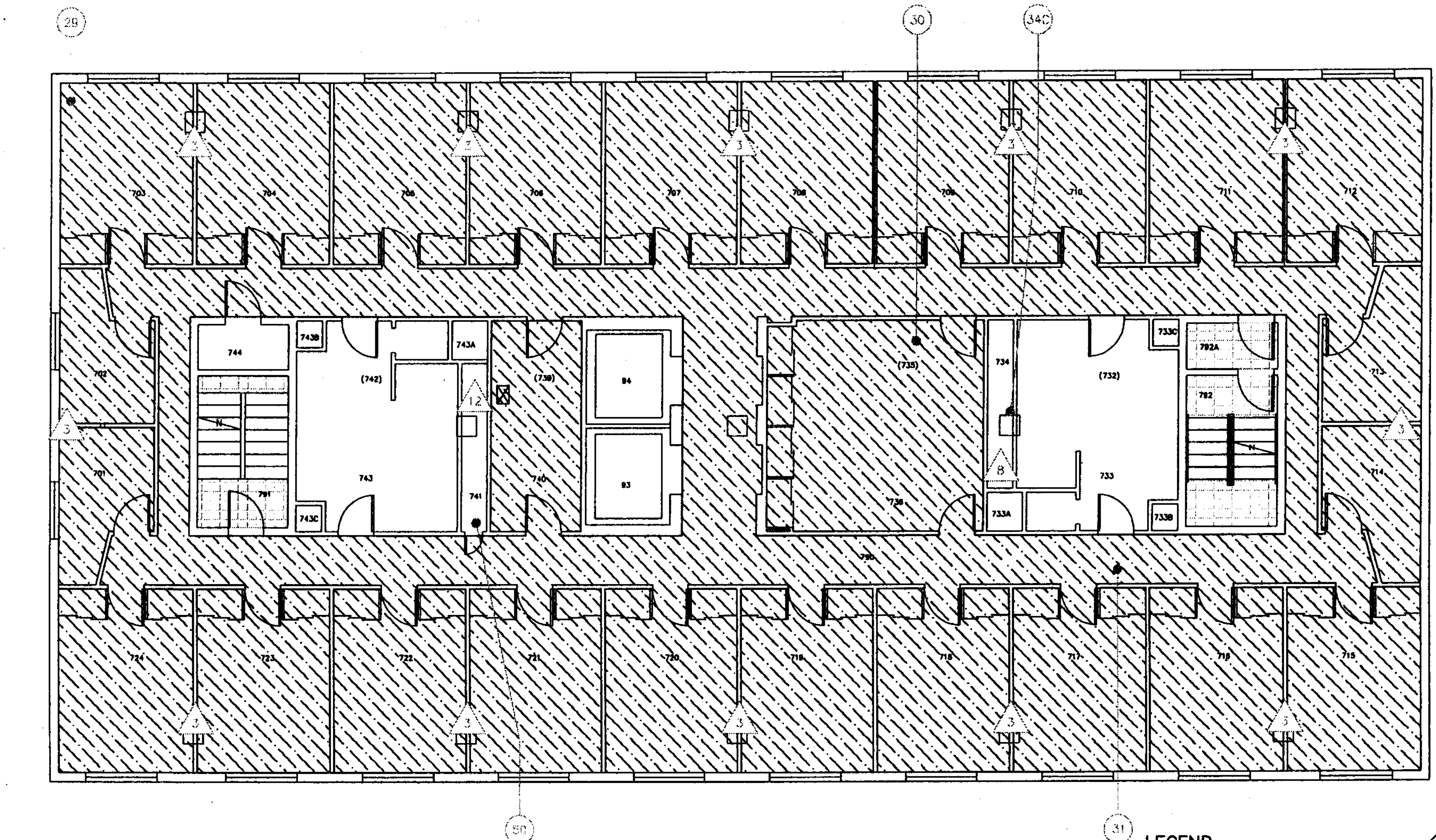
LEGEND

- (##) = SAMPLE LOCATION/ NUMBER
- △## = NUMBER OF THERMAL SYSTEM INSULATION FITTINGS IN THAT LOCATION
- = VINYL FLOOR TILE
- = TEXTURED CEILING MATERIAL
- ⊠ = SINK UNDERCOAT

Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building

CAD DATABASE
Date 10/10/91

DT V
6TH FLOOR



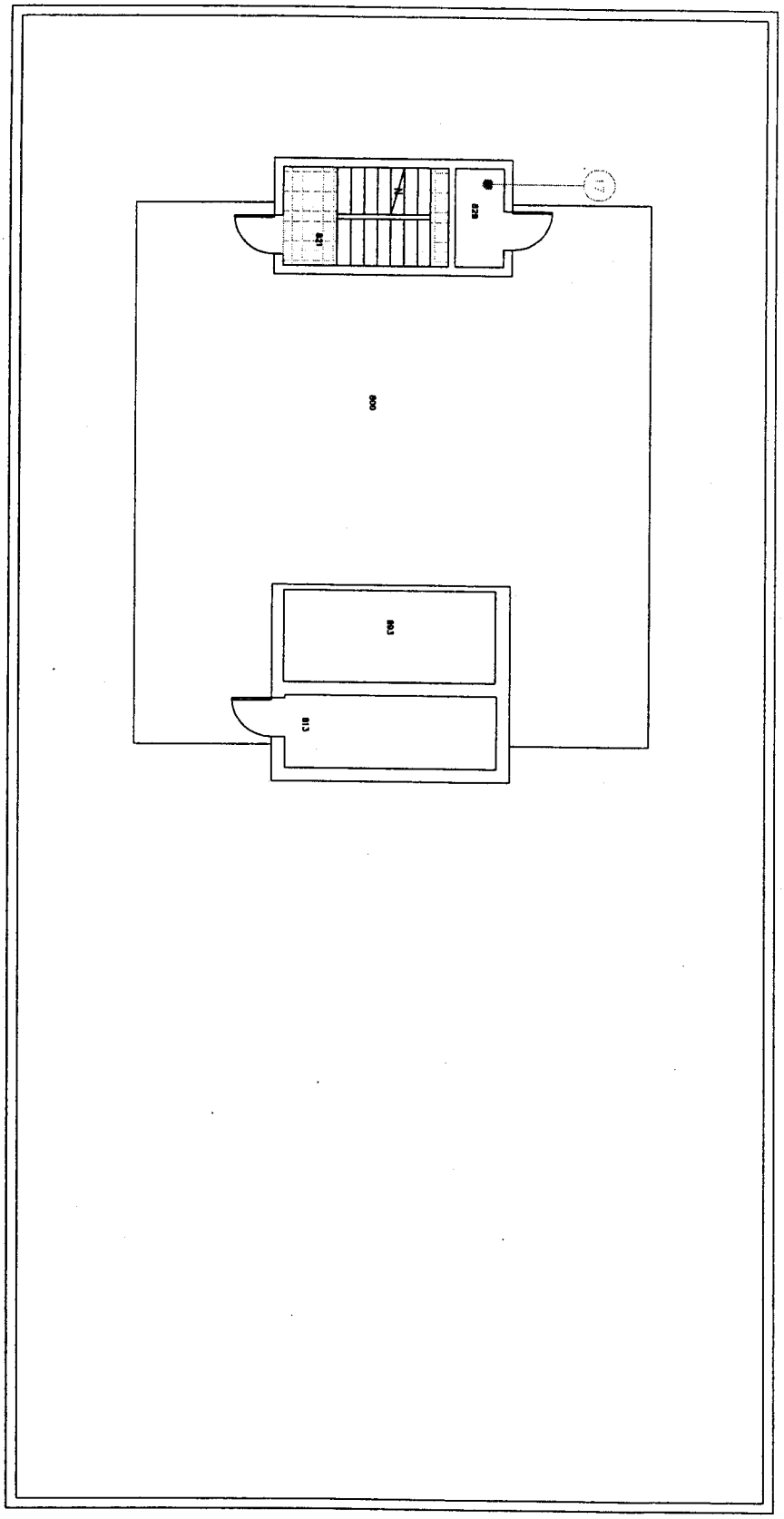
LEGEND

- (##) = SAMPLE LOCATION/ NUMBER
- △## = NUMBER OF THERMAL SYSTEM INSULATION FITTINGS IN THAT LOCATION
- = VINYL FLOOR TILE
- = TEXTURED CEILING MATERIAL
- ⊠ = SINK UNDERCOAT

Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building

CAD DATABASE
Date 10/10/91

DT V
7TH FLOOR



LEGEND

= SAMPLE LOCATION/ NUMBER

= VINYL FLOOR TILE

N

Brigham Young University
PLANNING DEPARTMENT
240 Brewster Building

CAD DATABASE
Date 10/10/91

DT V
8TH FLOOR

July 3, 2006

Mr. Dave Roskelley
R&R Environmental
47 West 9000 South, Unit #2
Sandy, UT 84070

Ref: Batch #70511, Lab #RR15868-RR15925
Received June 23, 2006
Test Report
BYU - Deseret Towers V-Hall
Sampled by David Roskelley, 6/21/06

Dear Mr. Roskelley:

Samples RR15868 through RR15925 have been analyzed by visual estimation based on EPA-600/M4-82-020 December 1982 optical microscopy test method. Appendix "A" contains statements which an accredited laboratory must make to meet the requirements of accrediting agencies. It also contains additional information about the method of analysis. Appendix "A" must be included as an essential part of this test report.

This report may be reproduced but all reproduction must be in full unless written approval is received from the laboratory for partial reproduction. The results of analysis are as follows:

Lab RR15868, Field DTV-01 9" VFT, Rm 111
This sample contains two types of material: The first type is tan plastic and limestone tile; the second type is brown resin mastic with debris. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 99% of the sample. The second type is 1% of the sample.

Lab RR15869, Field DTV-02 9" VFT, Rm 291
This is a tan plastic and limestone tile with yellow resin mastic. **Asbestos is none detected.**

The tile is 98% of the sample. The mastic is 2% of the sample.

Lab RR15870, Field DTV-03 9" VFT, Rm 492
This is a tan plastic and limestone tile with yellow resin mastic. **Asbestos is none detected.**

The tile is 98% of the sample. The mastic is 2% of the sample.

Lab RR15871, Field DTV-04 12" VFT #1B, Rm 90
This is a tan plastic and limestone tile with yellow resin mastic and debris. **Asbestos is none detected.**

The tile is 98% of the sample. The mastic and debris are 2% of the sample.

Lab RR15872, Field DTV-05 12" VFT #2B, Rm 90
This is a tan plastic and limestone tile. **Asbestos is none detected.**

Note: The black tar mastic contains **greater than 1% chrysotile asbestos.**

The tile is greater than 99% of the sample. The black tar mastic is less than 1% of the sample.

Lab RR15873, Field DTV-06 12" VFT #3B, Rm 90
This is an off-white plastic and limestone tile. **Asbestos is none detected.**

Note: No mastic.

Lab RR15874, Field DTV-07 12" VFT, Rm 592
This is a tan rubber and limestone tile. **Asbestos is none detected.**

Lab RR15875, Field DTV-08 Cove base, Rm 344
This sample contains two types of material: The first type is brown rubber and limestone with red paint; the second type is less than 1% talc fiber in brown resin mastic with white paint on one side. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 95% of the sample. The second type is 5% of the sample.

Lab RR15876, Field DTV-09 Cove base, Rm 644
This is brown rubber and limestone with a trace of red and white paint on one side. **Asbestos is none detected.**

Lab RR15877, Field DTV-10 Rise stair, Rm 692
This is tan rubber and limestone. **Asbestos is none detected.**

Lab RR15878, Field DTV-11 Run stair, Rm 692
This is tan rubber and limestone. **Asbestos is none detected.**

Lab RR15879, Field DTV-12 12" CT, Rm 126
This is brown compressed wood fiber in binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 2% of the sample.

Lab RR15880, Field DTV-13 2x2 CP, Rm 126
This is a light gray sample with perlite, 30% plant fiber, and 1% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 1% of the sample.

Lab RR15881, Field DTV-14 Sink undercoat, Rm 134
This is **3% chrysotile asbestos** in a black limestone binder with mica.

Lab RR15882, Field DTV-15 Sink undercoat, Rm 239
This is **10% chrysotile asbestos** in a gray binder with mica.

Lab RR15883, Field DTV-16 Sink undercoat, Rm 539
This is **10% chrysotile asbestos** in a gray binder with mica.

Lab RR15884, Field DTV-17 HVAC putty, Rm 829
This sample contains two types of material: The first type is **3% chrysotile asbestos** in white limestone binder; the second type is gray sandy plaster. This sample is non-homogeneous.

The first type is 70% of the sample. The second type is 30% of the sample.

Lab RR15885, Field DTV-18 Plaster, Rm 10
This is white sandy plaster. **Asbestos is none detected.**

Lab RR15886, Field DTV-19 Plaster, Rm 46
This sample contains two types of material: The first type is brown resin mastic; the second type is white and off-white sandy plasters. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 10% of the sample. The second type is 90% of the sample.

Lab RR15887, Field DTV-20 Plaster, Rm 47
This sample contains three types of material: The first type is white paint; the second type is white plaster with sand; the third type is off-white plaster with sand, perlite, less than 1% organic fiber, and a trace of vermiculite. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 2% of the sample. The second type is 8% of the sample. The third type is 90% of the sample.

Lab RR15888, Field DTV-21A Plaster - Wall, Rm 143
This is sand in gray cement. **Asbestos is none detected.**

Lab RR15889, Field DTV-21B Plaster - Wall, Rm 137
This is sandy gray cement. **Asbestos is none detected.**

Lab RR15890, Field DTV-21C Plaster - Wall, Rm 131
This is gray cement with a trace of sand and debris. **Asbestos is none detected.**

Lab RR15891, Field DTV-22 TCM - AC, Rm 219
This sample contains two types of material: The first type is off-white paint; the second type is **2% chrysotile asbestos** in white plaster with sand and vermiculite. This sample is non-homogeneous.
The first type is 15% of the sample. The second type is 85% of the sample.

Lab RR15892, Field DTV-23 TCM - AC, Rm 317
This is **3% chrysotile asbestos** in white limestone plaster with sand, vermiculite, and white paint.

The white paint is 5% of the sample.

Lab RR15893, Field DTV-24 TCM - AC, Rm 490 N.
This is **3% chrysotile asbestos** in white limestone plaster with sand, vermiculite, and white paint.

The white paint is 5% of the sample.

Lab RR15894, Field DTV-25 TCM - AC, Rm 521
This is **3% chrysotile asbestos** in white limestone plaster with sand, vermiculite, and white paint.

The white paint is 5% of the sample.

Lab RR15895, Field DTV-26 TCM - AC, Rm 590 N.
This is **3% chrysotile asbestos** in white limestone plaster with sand, vermiculite, and white paint.

The white paint is 5% of the sample.

Lab RR15896, Field DTV-27 TCM - AC, Rm 605
This is **3% chrysotile asbestos** in white limestone plaster with sand, vermiculite, and white paint.

The white paint is 5% of the sample.

Lab RR15897, Field DTV-28 TCM - AC, Rm 613
This is **3% chrysotile asbestos** in white limestone plaster with sand, vermiculite, and white paint.

The white paint is 5% of the sample.

Lab RR15898, Field DTV-29 TCM - AC, Rm 703
This is **3% chrysotile asbestos** in white limestone plaster with sand, vermiculite, and white paint.

The white paint is 5% of the sample.

Lab RR15899, Field DTV-30 TCM - AC, Rm 735
This is **3% chrysotile asbestos** in white limestone plaster with sand, vermiculite, and white paint.

The white paint is 5% of the sample.

Lab RR15900, Field DTV-31 TCM - AC, Rm 790 S.
This is **3% chrysotile asbestos** in white limestone plaster with sand, vermiculite, and white paint.

The white paint is 5% of the sample.

Lab RR15901, Field DTV-32A TCM - KD, Rm 126
This sample contains two layers: The first layer is white paint; the second layer is white micaceous limestone plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first layer is 40% of the sample. The second layer is 60% of the sample.

Lab RR15902, Field DTV-32B TCM - KD, Rm 126
This sample contains two layers: The first layer is white paint; the second layer is white micaceous limestone plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first layer is 40% of the sample. The second layer is 60% of the sample.

Lab RR15903, Field DTV-32C TCM - KD, Rm 126
This sample contains two layers: The first layer is white paint; the second layer is white micaceous limestone plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first layer is 40% of the sample. The second layer is 60% of the sample.

Lab RR15904, Field DTV-33A Fireproofing - Column, 1st ceiling crawl
This is less than 1% fiberglass in white plaster with vermiculite and perlite. **Asbestos is none detected.**

Lab RR15905, Field DTV-33B Fireproofing - Column, 1st ceiling crawl
This is less than 1% fiberglass in white plaster with vermiculite and sand. **Asbestos is none detected.**

Lab RR15906, Field DTV-33C Fireproofing - Column, 1st ceiling crawl
This is less than 1% fiberglass in white plaster with vermiculite and perlite. **Asbestos is none detected.**

Lab RR15907, Field DTV-34A Fireproofing - Column, Rm 334
This sample contains **0.8% chrysotile asbestos** in micaceous white limestone joint compound, brown plant fiber paper, and white gypsum plaster with 2% fiberglass. This sample is non-homogeneous. Overall, this is less than 0.1% chrysotile asbestos.

The joint compound is 2% of the sample. The plant fiber paper is 5% of the sample. The white gypsum plaster is 93% of the sample.

Note: Some of the chrysotile asbestos is a low grade variety that grades into a lizardite antigorite polymorph.

Lab RR15908, Field DTV-34B Fireproofing - Column, Rm 534
This sample contains **0.8% chrysotile asbestos** in micaceous white limestone joint compound, brown plant fiber paper, and white gypsum plaster with 2% fiberglass. This sample is non-homogeneous. Overall, this is less than 0.1% chrysotile asbestos.

The joint compound is 2% of the sample. The plant fiber paper is 5% of the sample. The white gypsum plaster is 93% of the sample.

Note: Some of the chrysotile asbestos is a low grade variety that grades into a lizardite antigorite polymorph.

Lab RR15909, Field DTV-34C Fireproofing - Column, Rm 734
This sample contains **0.8% chrysotile asbestos** in micaceous white limestone joint compound, brown plant fiber paper, and white gypsum plaster with 2% fiberglass. This sample is non-homogeneous. Overall, this is less than 0.1% chrysotile asbestos.

The joint compound is 2% of the sample. The plant fiber paper is 5% of the sample. The white gypsum plaster is 93% of the sample.

Note: Some of the chrysotile asbestos is a low grade variety that grades into a lizardite antigorite polymorph.

Lab RR15910, Field DTV-35 TSI - Tank top, Rm 15
This sample contains three types of material: The first type is glasswool with a light coating of yellow resin; the second type is 30% glasswool in gray plaster; the third type is 30% mineral wool in gray plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 20% of the sample. The second type is 70% of the sample. The third type is 10% of the sample.

Lab RR15911, Field DTV-36 TSI, Rm 41
This is **3% chrysotile asbestos** and 30% mineral wool in gray plaster with off-white cotton cloth on one side.

The cotton cloth is 5% of the sample.

Lab RR15912, Field DTV-37 TSI, Rm 44
This is **5% chrysotile asbestos** and 30% mineral wool in off-white plaster with green paint on one side.

The paint is 2% of the sample.

Lab RR15913, Field DTV-38 TSI, Basement attic
This is **3% chrysotile asbestos** and 30% mineral wool in gray plaster with off-white cotton cloth on one side.

The cotton cloth is 5% of the sample.

Lab RR15914, Field DTV-39 TSI, Basement attic
This is **3% chrysotile asbestos** and 30% mineral wool in gray plaster.

Lab RR15915, Field DTV-40 TSI - End resin, Rm 15
This sample contains three types of material: The first type is green paint; the second type is **3% chrysotile asbestos** in white binder; the third type is glasswool with a light coating of yellow resin. This sample is non-homogeneous.

The first type is 2% of the sample. The second type is 88% of the sample. The third type is 10% of the sample.

Lab RR15916, Field DTV-41 TSI - Tank, Rm 15
This is 30% glasswool in gray binder. **Asbestos is none detected.**

Lab RR15917, Field DTV-42 TSI, Rm 207
This is **8% chrysotile asbestos** and 30% mineral wool in gray plaster.

Lab RR15918, Field DTV-43 TSI, Rm 234
This is **3% chrysotile asbestos** and 30% mineral wool in gray plaster.

Lab RR15919, Field DTV-44 TSI, Rm 334
This is **5% chrysotile asbestos** and 30% mineral wool in gray plaster.

Lab RR15920, Field DTV-45 TSI, Rm 441
This is **3% chrysotile asbestos** and 30% mineral wool in gray plaster.

Lab RR15921, Field DTV-46 TSI, Rm 534
This is **5% chrysotile asbestos** and 30% mineral wool in gray binder.

Lab RR15922, Field DTV-47 TSI, Rm 341
This is **8% chrysotile asbestos** and 30% mineral wool in gray plaster.

Lab RR15923, Field DTV-48 TSI, Rm 634
This is **5% chrysotile asbestos** and 30% mineral wool in gray plaster.

Lab RR15924, Field DTV-49 TSI, Rm 641
This is **5% chrysotile asbestos** and 30% mineral wool in gray plaster.

Lab RR15925, Field DTV-50 TSI, Rm 741
This is **3% chrysotile asbestos** and 20% mineral wool in gray plaster.

In order to be sure reagents and tools used for analysis are not contaminated with asbestos, blanks are tested. Asbestos was none detected in the blanks tested with this bulk sample set.

Very truly yours,

Steve H. Dixon, President

Analyst: Julie Ingleby _____

Analyst: Kai Samuelsen _____

Analyst: Bruce P. Thorne _____

Analyst: Steve H. Dixon _____ Date Analyzed: 7/3/06

ROCKY MOUNTAIN CENTER FOR
OCCUPATIONAL AND
ENVIRONMENTAL HEALTH
Department of Family & Preventive Medicine
University of Utah
391 Chipeta Way, Suite C
Salt Lake City UT 84108
Phone: (801) 581-4055
Fax: (801) 585-5275

THIS CERTIFIES THAT

Jon Craig

HAS COMPLETED THE REQUISITE TRAINING FOR ASBESTOS ACCREDITATION UNDER TSCA TITLE II

ATTENDED AN ANNUAL REFRESHER COURSE IN

PRACTICES AND PROCEDURES IN
ASBESTOS ABATEMENT

Asbestos Inspector Refresher

DATE: January 6, 2006
NUMBER: [illegible]065
EXPIRES: January 6, 2007
CREDITS: 0.340 CEUs / .50 ABIH CM points

Utah Asbestos Certification

Jon R. Craig
ASB-2934
Inspector (Exp. 01/06/07)

Executive Secretary Utah Air Quality Board

Connie Crandall, MBA, MA
Continuing Education Director

ROCKY MOUNTAIN CENTER FOR
OCCUPATIONAL AND
ENVIRONMENTAL HEALTH
Department of Family & Preventive Medicine
University of Utah
391 Chipeta Way, Suite C
Salt Lake City UT 84108
Phone: (801) 581-4055
Fax: (801) 585-5275

THIS CERTIFIES THAT

David C. Roskelley

HAS COMPLETED THE REQUISITE TRAINING FOR ASBESTOS ACCREDITATION UNDER TSCA TITLE II

ATTENDED AN ANNUAL REFRESHER COURSE IN

PRACTICES AND PROCEDURES IN
ASBESTOS ABATEMENT

Asbestos Inspector/Management Planner Refresher

California Course Approval Number for Asbestos Inspector Refresher #CA-004-06 and Asbestos Management Planner Refresher #CA-004-08

DATE: November 30, 2005
NUMBER: 250633
EXPIRES: November 30, 2006
CREDITS: 0.680 CEUs / 1.0 ABIH CM points

Connie Crandall, MBA, MA
Continuing Education Director

Utah Asbestos Certification

David C. Roskelley
ASB-1370
Inspector (Exp. 11/30/06)
Management Planner (Exp. 11/30/06)
Supervisor (Exp. 06/03/06)
Project Designer (Exp. 06/01/06)

Executive Secretary Utah Air Quality Board

State of Utah

Department of Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

DAQC-1534-2006

MEMORANDUM

TO: Air Quality Board

FROM: Richard W. Sprott, Executive Secretary

DATE: November 2, 2006

SUBJECT: Compliance Activities –October 2006

Annual Inspections Conducted:

A 5
SM 2
B..... 8

Initial Compliance Inspections Conducted:

A 0
SM 1
B..... 1

On-Site stack test audits conducted: 3
Stack test report reviews:..... 14

On-site CEM audits conducted:..... 7
Emission reports reviewed:..... 8

[1]Miscellaneous inspections conducted..... …...42
Complaints received: 18

VOC inspections:

Tanker trucks 2
Degreasers..... 2
Paint Booths..... 20

Source Compliance Action Notice issued..... 5
Notices of Violation issued..... 0

Compliance Advisories issued..... 5

Settlement Agreements resolved..... 4

Penalties Collected..... $22,759.20

Notices of Violations issued:

None

Compliance Advisories issued:

Lofthouse Foods Inc.
Ashdown Brothers Construction
Deseret Chemical Depot
University of Utah
Paria Mining

Settlement Agreements Reached:

Metro Ready Mix.....$1,600.00
Geneva Rock.....$15,200.00

_____

[1]Miscellaneous inspections include, e.g., surveillance, level I inspections, complaints, on-site training, dust patrol, smoke patrol, open burning, etc.

State of Utah

Department of Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

MEMORANDUM

DAQH-0838-06

TO: Utah Air Quality Board

FROM: Richard W. Sprott, Executive Secretary

DATE: November 15, 2006

SUBJECT: Hazardous Air Pollutant Section Compliance Activities – October 2006

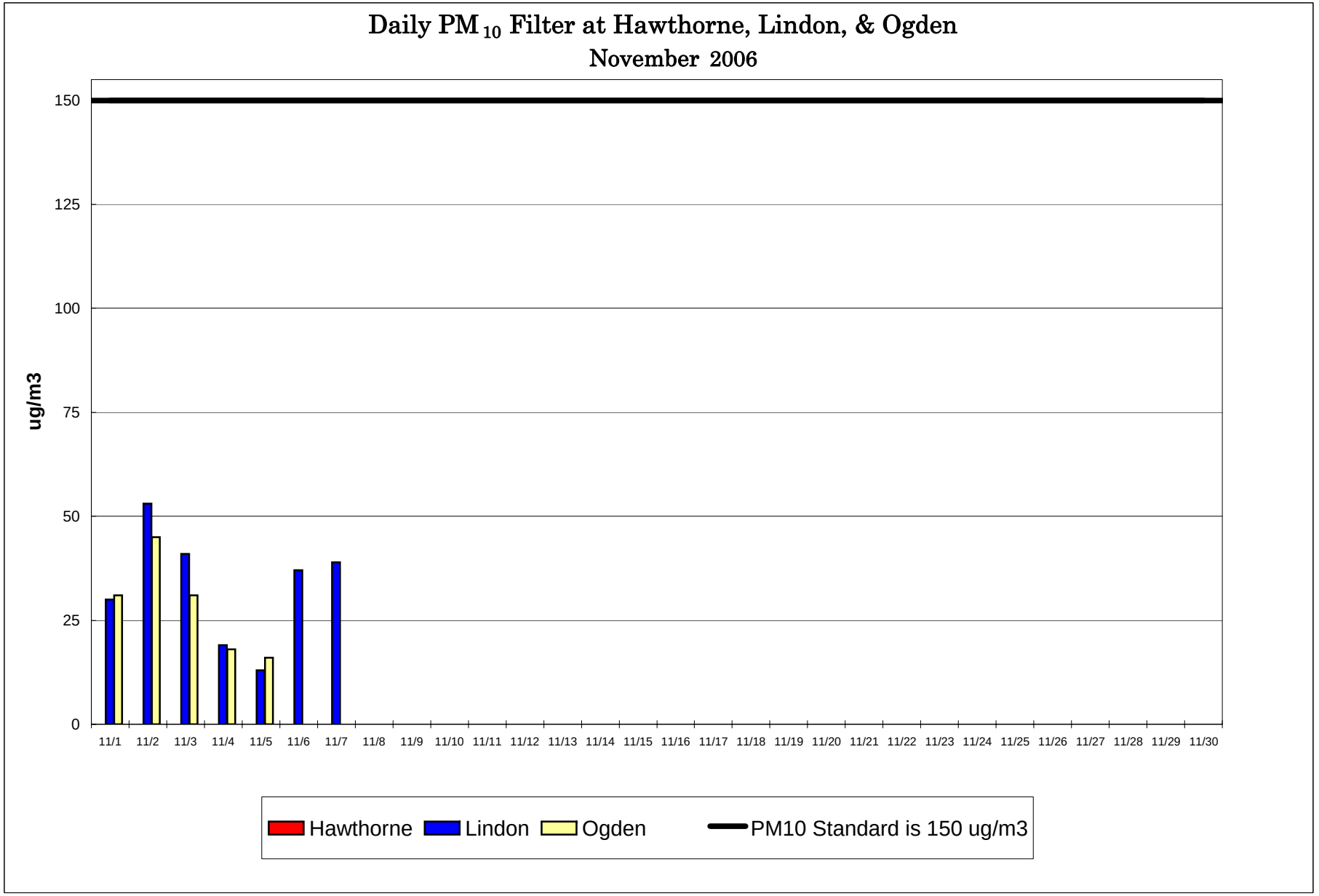
Asbestos Demolition/Renovation Inspections	14
Asbestos in School Inspections	0
MACT Compliance Inspections	12
Other NESHAP Inspections	0
State Rules (Only) Inspections	1
Asbestos Notifications Accepted	97
Asbestos Phone Calls Answered	402
Asbestos Individuals Certifications: Approved/Disapproved	22/0
Company Certifications/Re-certifications	2/0
Alternate Asbestos Work Practices: Approved/Disapproved	5/0
Lead Based Paint (LBP) Inspections	4
LBP Notifications Approved	3
LBP Phone Calls Answered	41

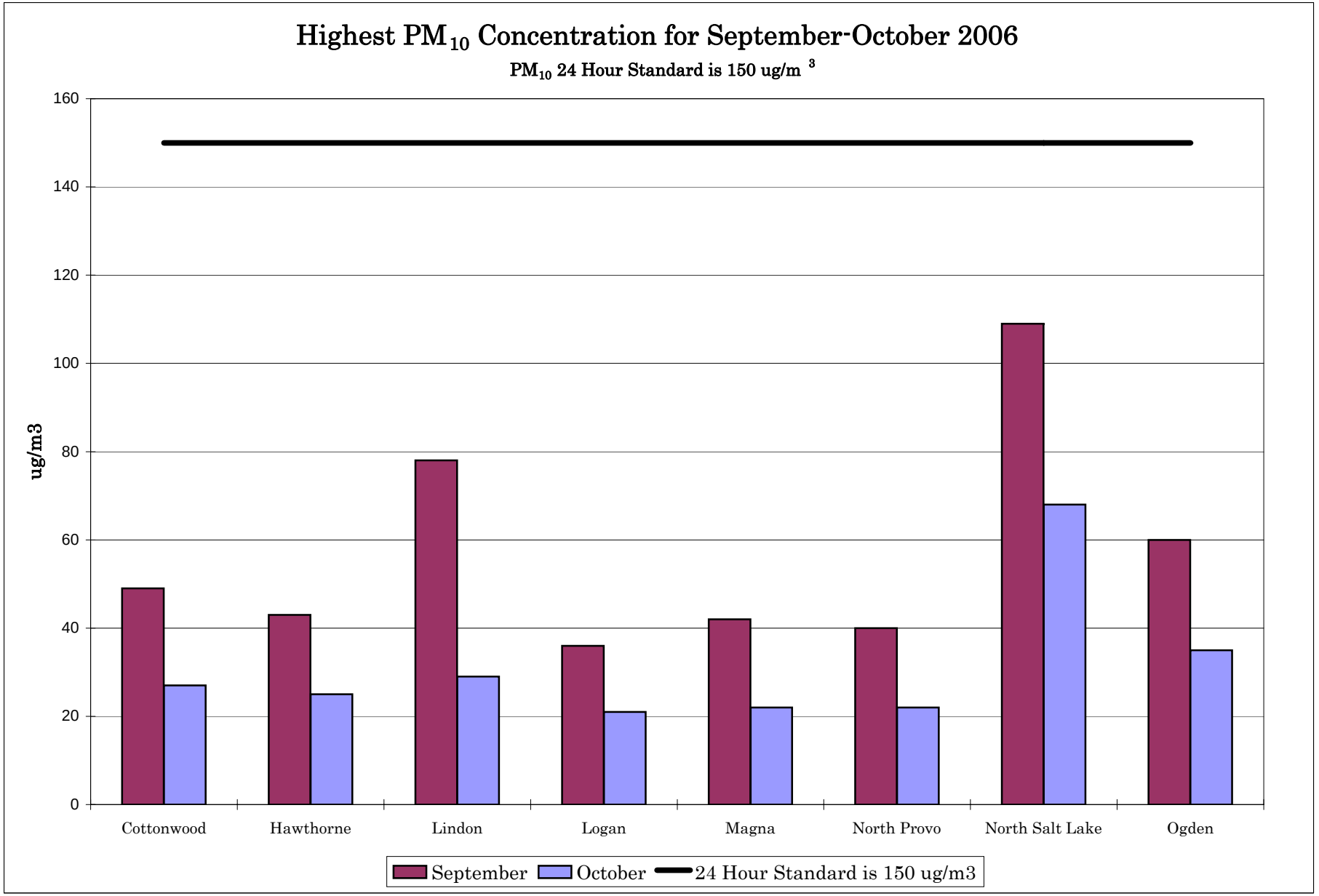
LBP Letters prepared and mailed	23
LBP Courses Reviewed/Approved	0/0
LBP Course Audits	1
LBP Certifications Approved/Disapproved	5/0
LBP Company Certifications	1
Small Business Phone Calls Answered	10
Notices of Violation Issued	0
Notices of Noncompliance (NON)	0
Compliance Advisories Issued	5

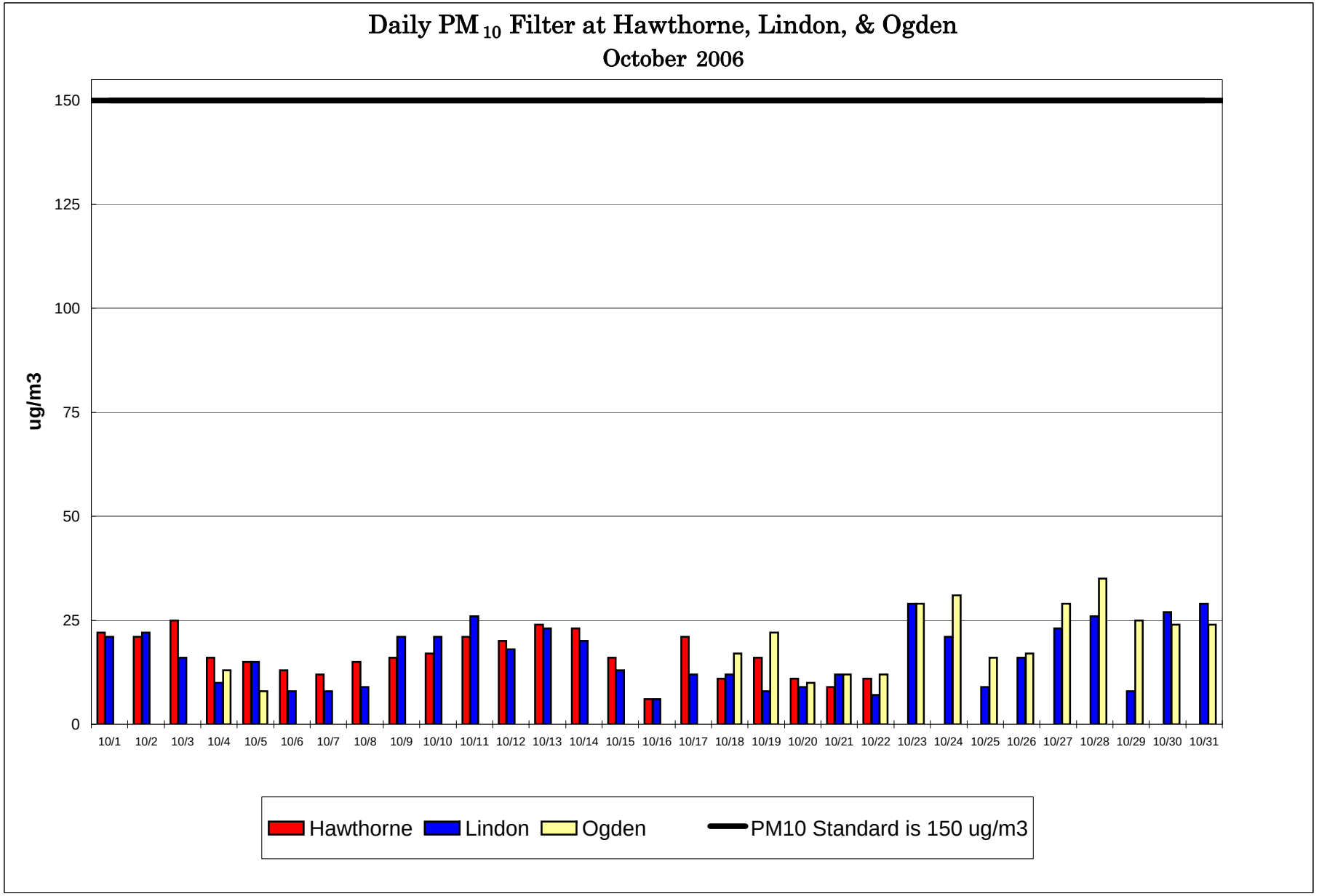
John Orton Excavation
House Inspect
Keith Barton Construction
Clean Harbors
Sullivan Construction

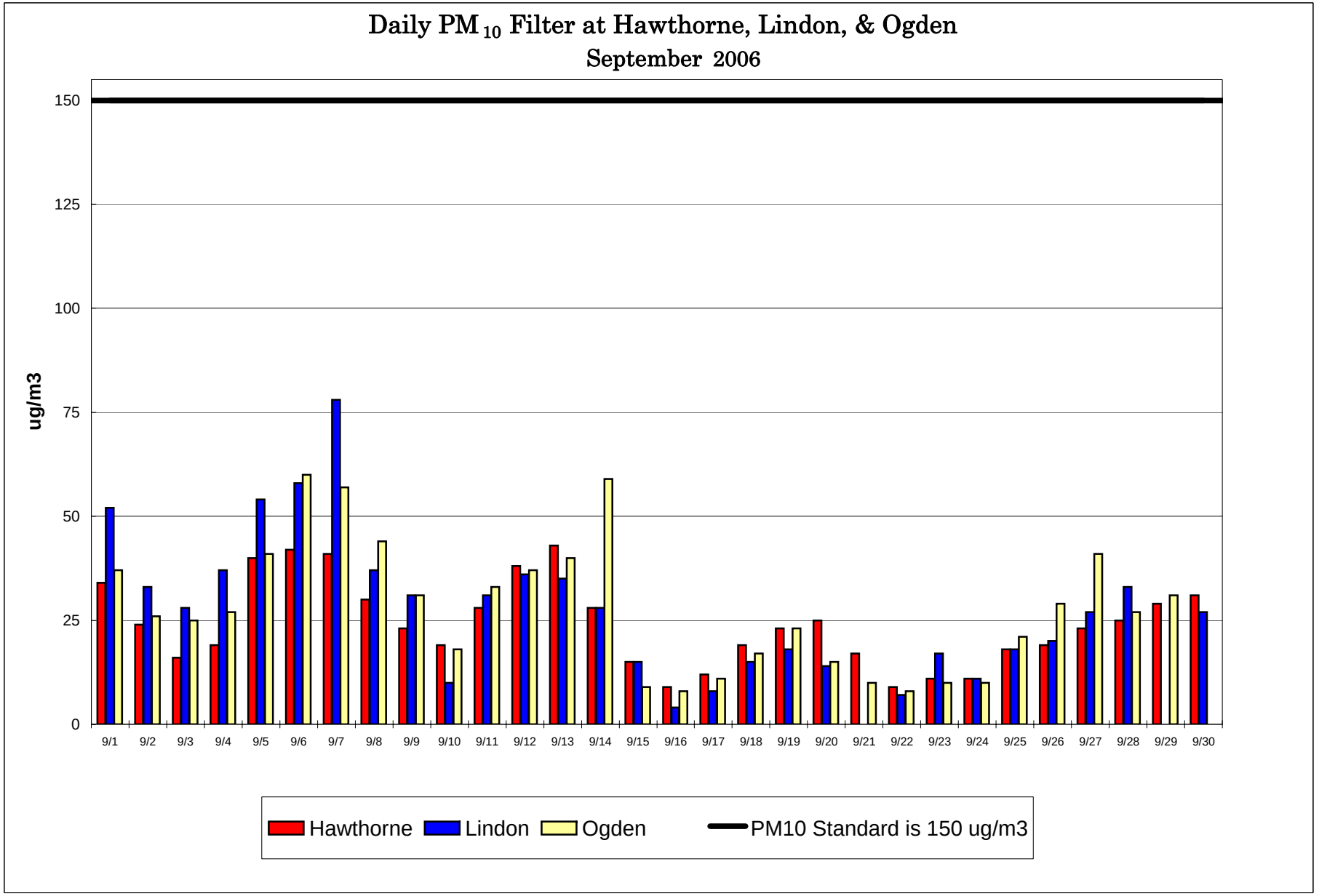
SCANS or Warning Letters Issued	7
Settlement Agreements Finalized	2
Penalties Agree to	$7,248

Grant Mackay Demolition	$4,000
Intermountain Painting	$3,248


Daily PM 10 Filter at Hawthorne, Lindon, & Ogden
November 2006
ug/m3
150
125
100
75
50
25
0
11/1 11/2 11/3 11/4 11/5 11/6 11/7 11/8 11/9 11/10 11/11 11/12 11/13 11/14 11/15 11/16 11/17 11/18 11/19 11/20 11/21 11/22 11/23 11/24 11/25 11/26 11/27 11/28 11/29 11/30
Hawthorne
Lindon
Ogden
PM10 Standard is 150 ug/m3


Highest PM10 Concentration for September-October 2006
PM10 24 Hour Standard is 150 ug/m 3
160
140
120
100
80
60
40
20
0
ug/m3
Cottonwood
Hawthorne
Lindon
Logan
Magna
North Provo
North Salt Lake
Ogden
September
October
24 Hour Standard is 150 ug/m3


Daily PM 10 Filter at Hawthorne, Lindon, & Ogden
October 2006
ug/m3
150
125
100
75
50
25
0
10/1 10/2 10/3 10/4 10/5 10/6 10/7 10/8 10/9 10/10 10/11 10/12 10/13 10/14 10/15 10/16 10/17 10/18 10/19 10/20 10/21 10/22 10/23 10/24 10/25 10/26 10/27 10/28 10/29 10/30 10/31
Hawthorne
Lindon
Ogden
PM10 Standard is 150 ug/m3


Daily PM 10 Filter at Hawthorne, Lindon, & Ogden
September 2006
ug/m3
150
125
100
75
50
25
0
9/1
9/2
9/3
9/4
9/5
9/6
9/7
9/8
9/9
9/10
9/11
9/12
9/13
9/14
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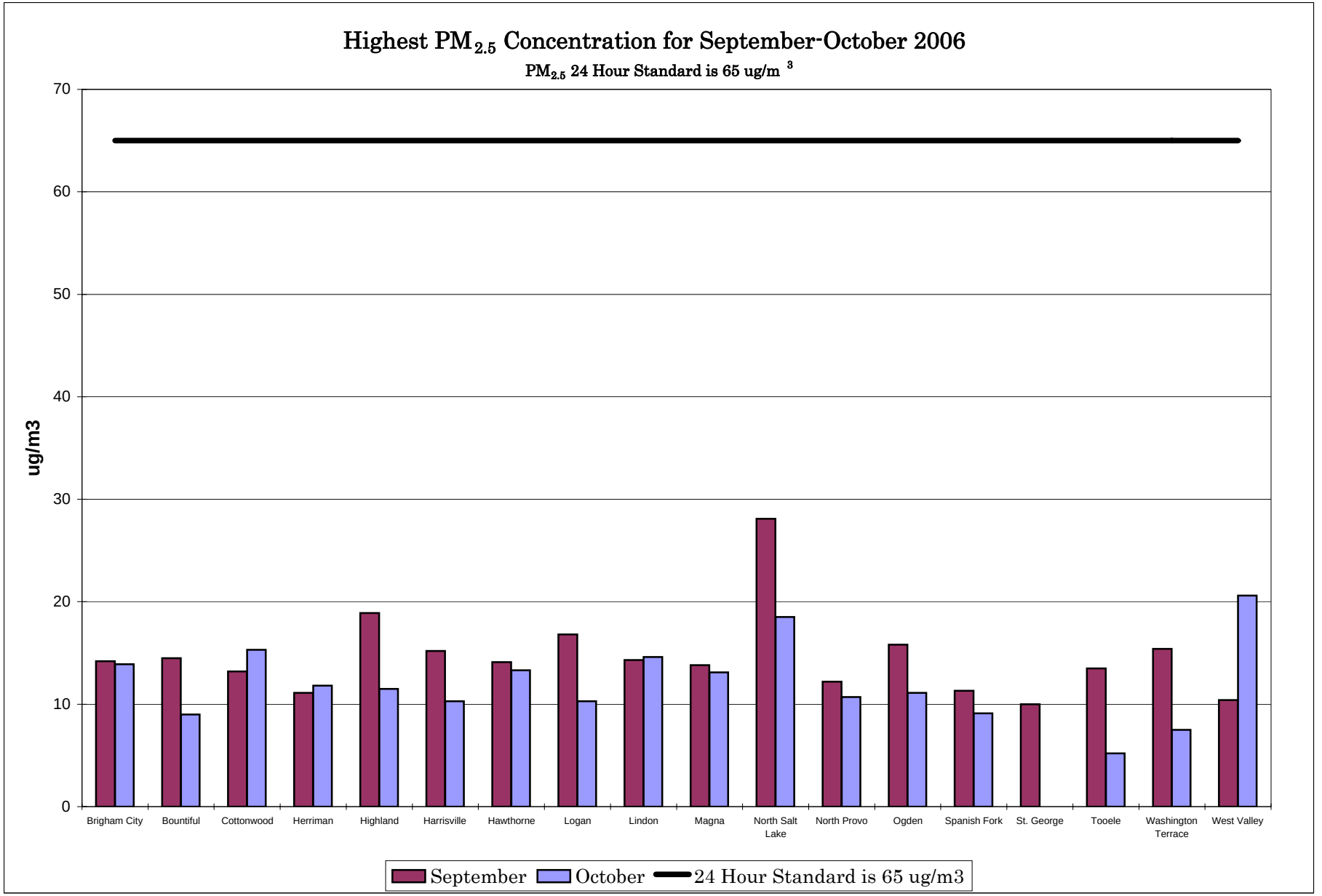
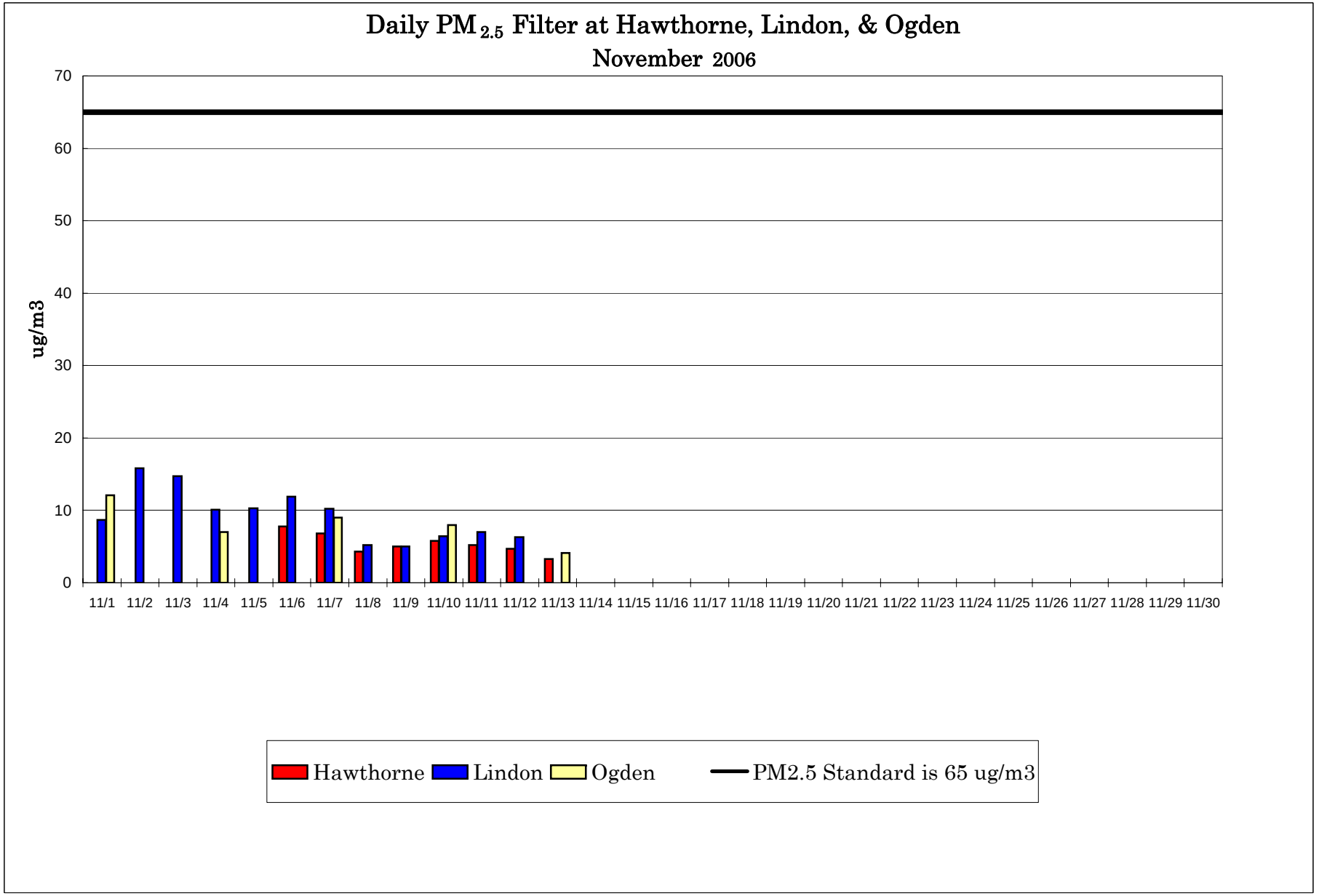
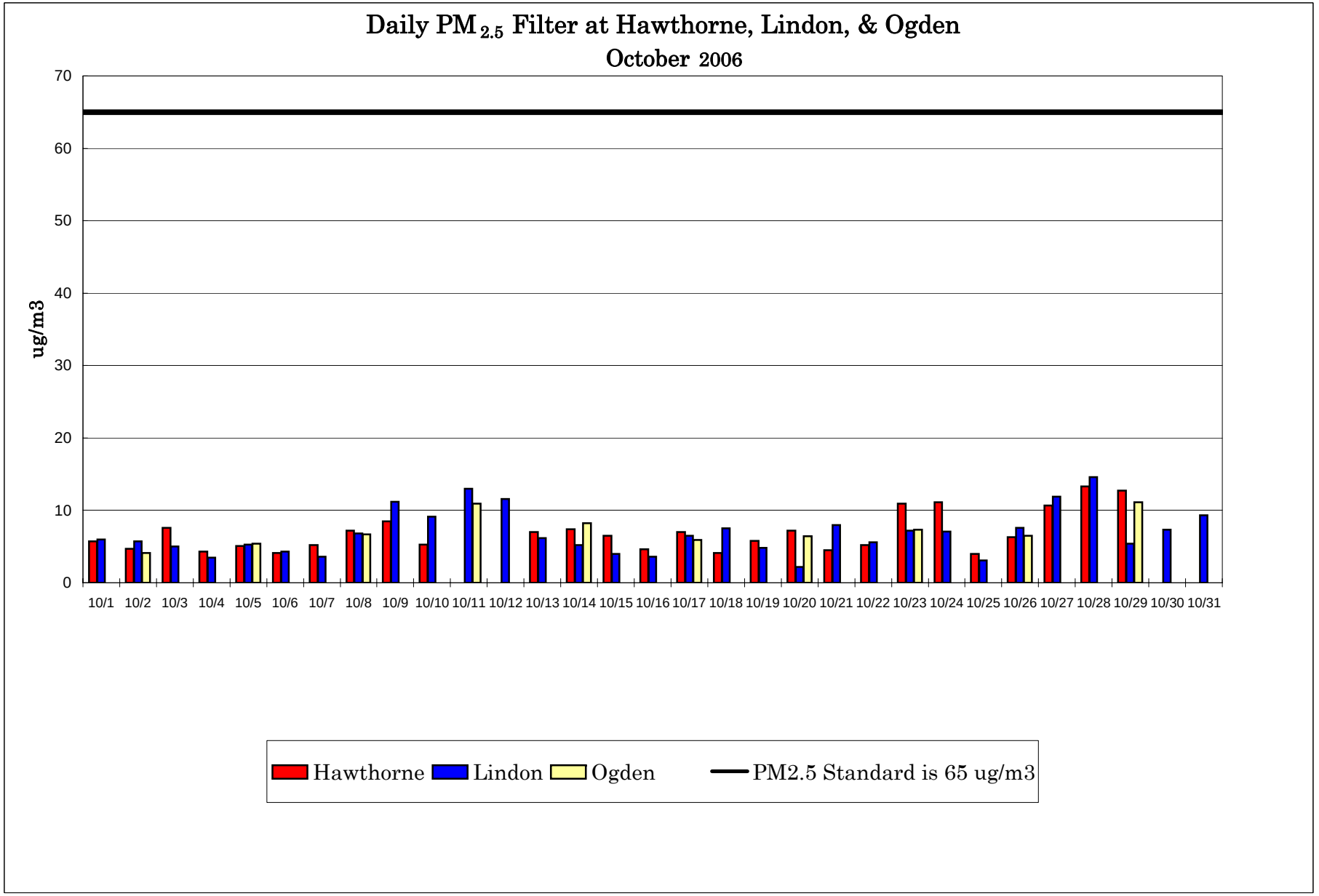
9/28
9/29
9/30
Hawthorne
Lindon
Ogden
PM10 Standard is 150 ug/m3


Highest PM2.5 Concentration for September-October 2006
PM2.5 24 Hour Standard is 65 ug/m 3
ug/m3
70
60
50
40
30
20
10
0
Brigham City
Bountiful
Cottonwood
Herriman
Highland
Harrisville
Hawthorne
Logan
Lindon
Magna
North Salt Lake
North Provo
Ogden
Spanish Fork
St. George
Tooele
Washington Terrace
West Valley
September
October
24 Hour Standard is 65 ug/m3


Daily PM2.5 Filter at Hawthorne, Lindon, & Ogden
November 2006
ug/m3
70
60
50
40
30
20
10
0
11/1 11/2 11/3 11/4 11/5 11/6 11/7 11/8 11/9 11/10 11/11 11/12 11/13 11/14 11/15 11/16 11/17 11/18 11/19 11/20 11/21 11/22 11/23 11/24 11/25 11/26 11/27 11/28 11/29 11/30
Hawthorne
Lindon
Ogden
PM2.5 Standard is 65 ug/m3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10
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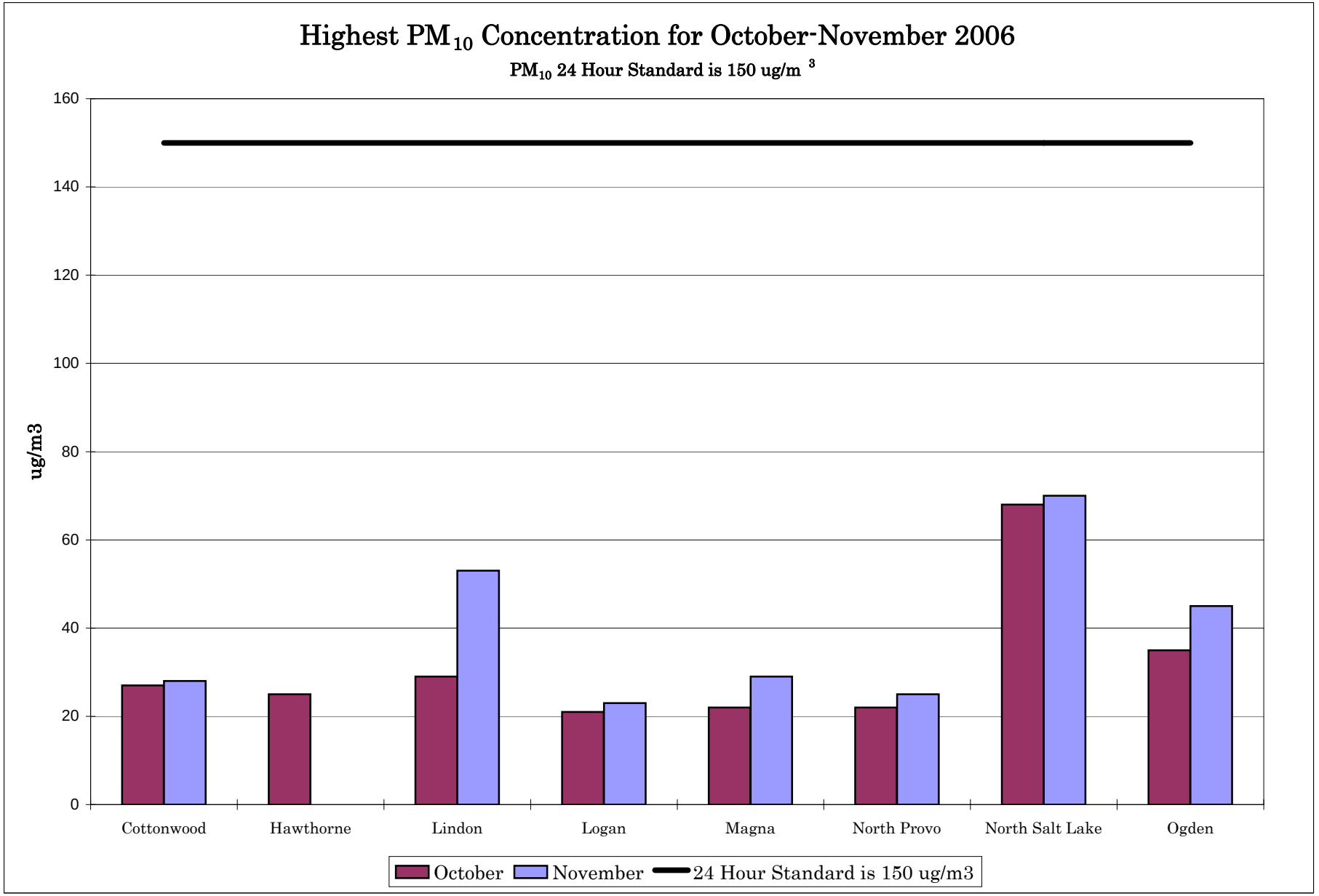
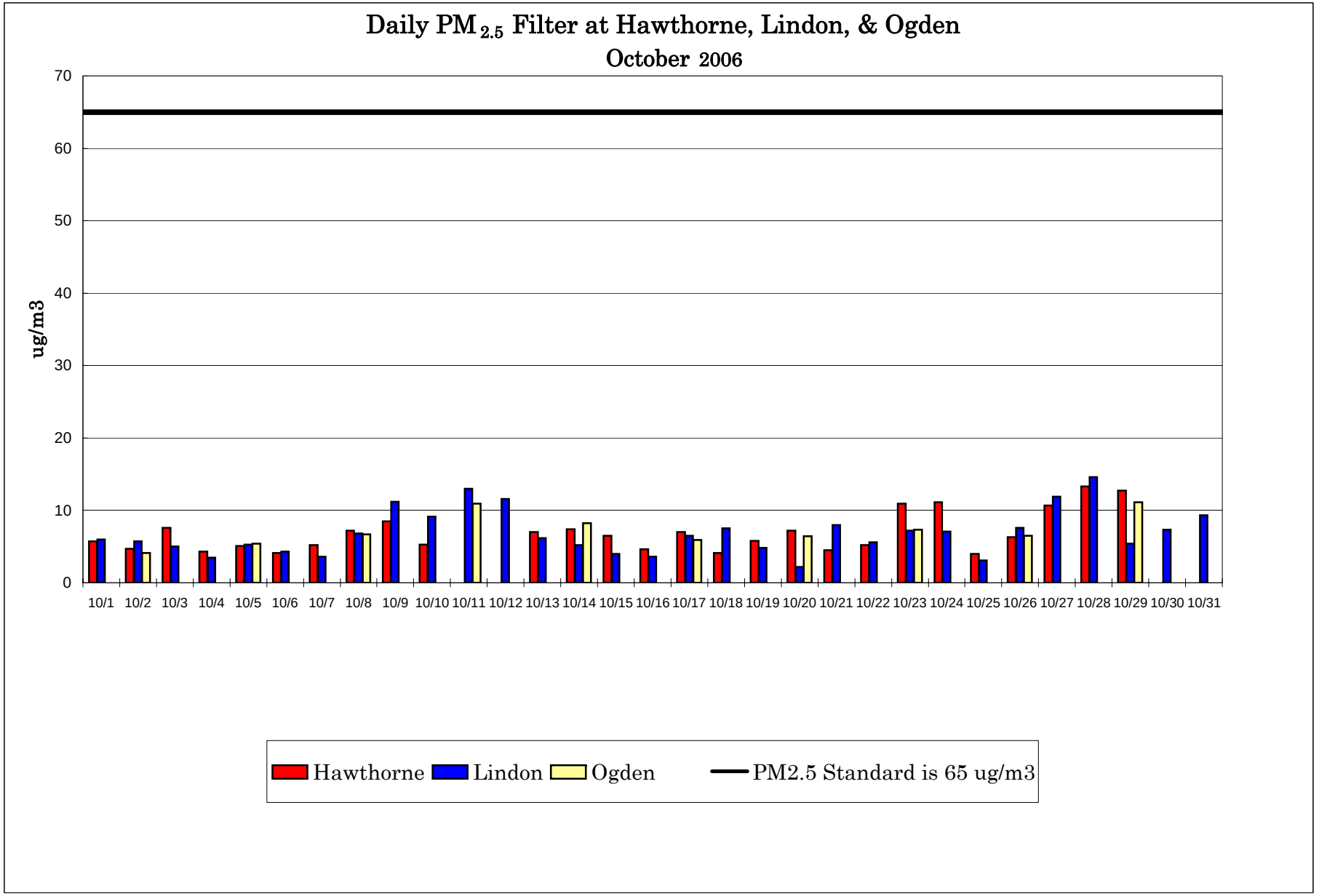
Hawthorne
Lindon
Ogden
PM2.5 Standard is 65 ug/m3


Highest PM10 Concentration for October-November 2006
PM10 24 Hour Standard is 150 ug/m 3
160
140
120
100
80
60
40
20
0
ug/m3
Cottonwood
Hawthorne
Lindon
Logan
Magna
North Provo
North Salt Lake
Ogden
October
November
24 Hour Standard is 150 ug/m3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October 2006
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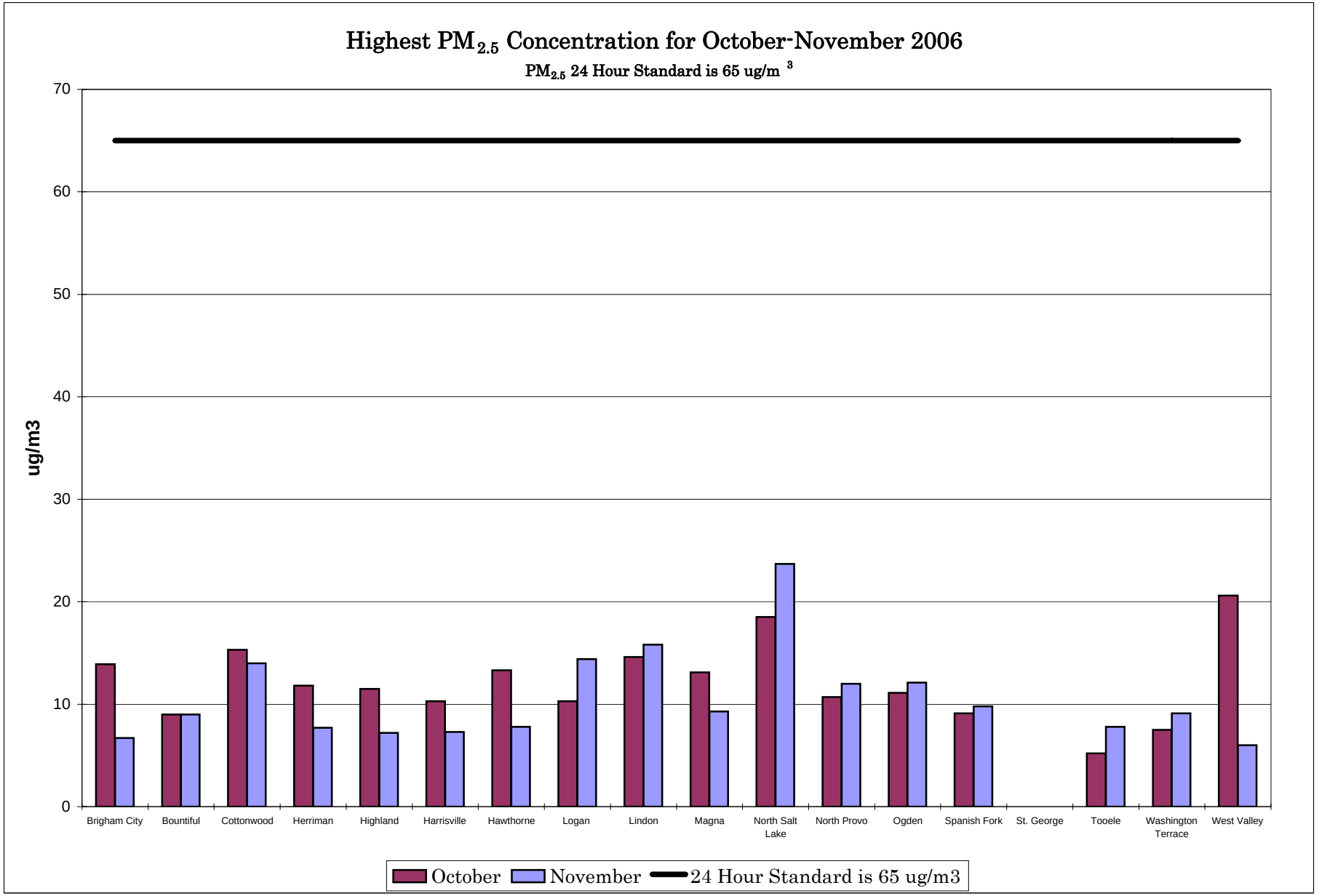
20
10
0
10/1 10/2 10/3 10/4 10/5 10/6 10/7 10/8 10/9 10/10 10/11 10/12 10/13 10/14 10/15 10/16 10/17 10/18 10/19 10/20 10/21 10/22 10/23 10/24 10/25 10/26 10/27 10/28 10/29 10/30 10/31
Hawthorne
Lindon
Ogden
PM2.5 Standard is 65 ug/m3


Highest PM2.5 Concentration for October-November 2006
PM2.5 24 Hour Standard is 65 ug/m 3
ug/m3
70
60
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40
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20
10
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Brigham City
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Highland
Harrisville
Hawthorne
Logan
Lindon
Magna
North Salt Lake
North Provo
Ogden
Spanish Fork
St. George
Tooele
Washington Terrace
West Valley
October
November
24 Hour Standard is 65 ug/m3

UTAH STATE DIVISION OF AIR QUALITY

47mm Partisol: PM10 Concentration Adjusted to Sea Level (24-hr average) in Micrograms per Cubic Meter

2006 October

Date	Cottonwood	Hawthorn	Lindon	Logan 4	Magna(W)	StGeorge2	NProvo	NProvo-X	NSL	NSL-X	Ogden2
10/01		22	21								
10/02	25	21	22	13	15		22	20	46	47	
10/03		25	16						41		
10/04		16	10						28		13
10/05	18	15	15	9	7	23	9		30		8
10/06		13	8						32		
10/07		12	8						15		
10/08	15	15	9	8	11		11	10	21	19	
10/09		16	21						43		
10/10		17	21			13			26		
10/11	27	21	26	21			21		36		
10/12		20	18						32		
10/13		24	23						48		
10/14	23	23	20	20	7	10	17	17	32	35	
10/15		16	13						31		
10/16		6	6						15		
10/17	13	21	12	8	16	11	10		22		
10/18		11	12						27		17
10/19		16	8			25			19		22
10/20	13	11	9	5	8		9	9	22	24	10
10/21		9	12						21		12
10/22		11	7						36		12
10/23	23	30	29	16	22		17		46		29
10/24		33	21						68		31
10/25		13	9						33		16
10/26	12	11	16	12	4	24	16	16	17	18	17
10/27		28	23						38		29
10/28		27	26						45		35
10/29	23	24	8	13	22		11		39		25
10/30			27						33		24
10/31			29						46		24
Arith Mean	19	18	16	12	12	18	14	14	33	29	20
Max 24-hr Avg	27	33	29	21	22	25	22	20	68	47	35
Std. Dev	6	7	7	5	7	7	5	5	12	12	8
Days of Data	10	29	31	10	9	6	10	5	30	5	16
Days >150											
Yearly Avg	24	22	25	21	19	34	22	20	41	42	25

UTAH STATE DIVISION OF AIR QUALITY

PM2.5 Actual Concentration (24-hr average) in Micrograms per Cubic Meter

2006 November

Date	AG	BR	BV	CW	HE	HG	HV	HW	HY	L4	X4	LN	LX	MG	N2	NP	O2	SF	SW	T3	WT	WX	WV	VX
11/01		5.6	9.0	14.0	7.7	7.2	7.3	9.6		7.2	8.9	8.7	10.3	9.3	17.9	8.7	12.1	6.5	13.9	7.8	9.1	8.8	16.8	17.1
11/02								15.5		13.8	12.1	15.8			23.7									
11/03								14.1		13.9	14.4	14.7			18.1									
11/04		6.7	4.7	10.7	5.1	5.9	4.6	9.0		7.0	8.0	10.1		3.9	9.5	12.0	7.0	9.8	10.1		5.6			
11/05								8.2		5.5	6.9	10.3			9.3									
11/06								7.8		8.7	9.0	11.9			10.3									
11/07		5.4	5.7	6.5	2.3	4.2	4.4	6.8		5.1	6.7	10.2	10.1	3.5	9.5	7.7	9.0	7.8		3.9	4.2	4.8	5.8	
11/08								4.3		3.9	4.8	5.2			7.0									
11/09								5.0		2.7	3.3	5.0			5.3									
11/10		3.7	5.1	6.7		4.1	4.3	5.8		5.7	5.5	6.4		5.0	8.3	7.3	8.0	7.3	5.3	4.3	5.9		6.0	
11/11								5.2		6.5	6.9	7.0			6.9									
11/12								4.7		3.8	3.9	6.3			4.5									
11/13			3.1	1.0	1.7	3.6	3.6	3.3		2.5	2.3	3.3	3.0	2.4	6.5	3.8	4.1	2.9		0.2	3.3	3.7	3.2	2.9
11/14										4.4	3.5	0.1			5.2				6.0					
11/15										7.8	6.6	11.2			15.0									
11/16			22.6		7.0	10.3				10.5	13.1	14.5			21.8	16.2		10.3		10.4			16.3	
11/17										12.1	14.9	14.0			30.2									
11/18										10.8	11.3	14.2			25.7									
11/19			10.5			6.5				11.2	10.4	11.5	11.0		15.9	10.6		9.8		7.3			18.3	18.3
11/20												9.1												
11/21																								
11/22																								
11/23																								
11/24																								
11/25																								
11/26																								
11/27																								
11/28																								
11/29																								
11/30																								

Arith Mean		5.3	8.7	7.8	4.8	6.0	4.8	7.6		7.5	8.0	9.5	8.6	4.8	13.2	9.5	8.0	7.8	8.8	5.7	5.6	5.8	11.1	12.8
Max 24-hr Avg		6.7	22.6	14.0	7.7	10.3	7.3	15.5		13.9	14.9	15.8	11.0	9.3	30.2	16.2	12.1	10.3	13.9	10.4	9.1	8.8	18.3	18.3
Std.Dev		1.2	6.7	4.9	2.7	2.3	1.4	3.7		3.6	3.8	4.2	3.8	2.7	7.8	4.0	2.9	3.6	2.2	4.0	2.2	2.7	6.8	8.5
Days Data		4	7	5	5	7	5	13		19	19	20	4	5	19	7	5	7	4.0	6	5	3	6	3
Yearly Mean	9.9	7.5	8.0	9.3	7.3	8.0	7.5	9.2	8.9	8.6	9.0	9.1	8.3	7.5	12.4	8.3	9.5	6.9	7.8	6.2	7.7	7.1	9.8	8.6

UTAH STATE DIVISION OF AIR QUALITY

PM2.5 Actual Concentration (24-hr average) in Micrograms per Cubic Meter

2006 October

Date	AG	BR	BV	CW	HE	HG	HV	HW	HY	L4	X4	LN	LX	MG	N2	NP	O2	SF	SW	T3	WT	WX	WV	VX
10/01								5.7		7.7	8.0	6.0			11.0									
10/02		3.8	4.2	4.8	5.5	3.9	5.5	4.7	4.3	5.3	5.0	5.7	4.5	3.8	11.5	5.0	4.1	5.2					5.1	5.1
10/03								7.6		7.9	7.4	5.0			12.4									
10/04								4.3		4.1	14.6	3.5			9.1									
10/05		4.1	5.2	4.7	3.5	4.2	1.3	5.1		4.4	8.4	5.3		5.2	9.2	3.9	5.4	4.3	6.9	3.3			4.8	
10/06								4.1		1.9	7.8	4.3			6.0									
10/07								5.2		2.9	3.6	3.6			5.8									
10/08		3.8	5.6	7.3	9.0	5.0	4.3	7.2		4.7	5.4	6.8	7.8	5.7	9.6	6.9	6.7	6.1			6.4	6.3	9.0	9.1
10/09								8.5		5.1	10.3	11.2			13.0									
10/10								5.3		2.1	3.2	9.1			8.2				4.2					
10/11		5.0		12.2	11.8	11.5	6.3			6.5	7.4	13.0		11.7	15.0	10.7	10.9	9.1			7.5		15.5	
10/12										7.5	6.8	11.6			9.0									
10/13								7.0			8.1	6.2			10.9									
10/14		6.2	7.1	7.7	4.1		5.9	7.4		8.5	8.7	5.2	4.0	7.9	10.4	7.2	8.2	6.5	2.3	5.0	6.6	6.8	9.8	9.6
10/15								6.5		6.3	6.2	4.0			7.8									
10/16								4.6		3.1	3.3	3.6			6.2									
10/17		2.8	5.5		3.0	6.4	3.3	7.0		3.3	3.1	6.5		2.7	6.9	7.4	5.9	8.0	3.6	3.9	6.6		4.5	
10/18								4.1		3.2	3.2	7.5												
10/19				6.6				5.8		4.7	5.4	4.8			7.0				6.7					
10/20		2.8	4.0			2.1	2.8	7.2		3.2	2.9	2.2	4.7		5.2	4.3	6.4	2.5		3.3	2.8	3.5	2.0	3.3
10/21								4.5		7.0	5.4	8.0			6.0									
10/22								5.2		4.9	5.0	5.6												
10/23		5.0	7.9	10.2	4.1	4.7	7.9	10.9		8.2	8.7	7.2		13.1	14.2	7.1	7.3	6.2			6.8		12.6	
10/24								11.1		8.5	9.5	7.1			18.5					5.2				
10/25								4.0		4.1	3.2	3.1			5.3									
10/26		3.3	4.6	7.2	3.2	6.8	4.2	6.3		6.8	7.7	7.6	9.4		7.3	6.6	6.5	7.2	4.9	3.0	3.7			6.1
10/27								10.7		8.2	8.0	11.9			13.7									
10/28								13.3		9.7	10.4	14.6			17.8									
10/29		13.9	9.0	15.3	4.2	3.8	10.3	12.7		10.3	10.7	5.4		12.0	16.6	5.3	11.1	2.7		4.1	7.5		20.6	
10/30								7.9		4.1	5.0	7.3			8.6									
10/31								9.8		7.0	7.5	9.3			12.1									
Arith Mean		5.1	5.9	8.5	5.4	5.4	5.2	7.0	4.3	5.7	6.8	6.9	6.1	7.8	10.1	6.4	7.3	5.8	4.8	3.9	6.0	5.6	9.3	6.7
Max 24-hr Avg		13.9	9.0	15.3	11.8	11.5	10.3	13.3	4.3	10.3	14.6	14.6	9.4	13.1	18.5	10.7	11.1	9.1	6.9	5.2	7.5	6.8	20.6	9.6
Std.Dev		3.3	1.7	3.5	3.0	2.7	2.6	2.7		2.3	2.8	3.1	2.4	4.0	3.8	2.0	2.3	0.9	1.8	1.8	1.8	1.8	6.0	2.7
Days Data		10	9	9	9	9	10	29	1	30	31	31	5	8	29	10	10	10	6.0	7	8	3	9	5
Yearly Mean	9.9	7.6	7.9	9.4	7.5	8.2	7.6	9.3	8.9	8.7	9.1	9.0	8.3	7.6	12.3	8.2	9.6	6.9	7.8	6.3	7.8	7.2	9.7	8.4

UTAH STATE DIVISION OF AIR QUALITY

47mm Partisol: PM10 Concentration Adjusted to Sea Level (24-hr average) in Micrograms per Cubic Meter

2006 November

Date	Cottonwood	Hawthorn	Lindon	Logan 4	Magna(W)	StGeorge2	NProvo	NProvo-X	NSL	NSL-X	Ogden2
11/01	28		30	23		60	20	19	61	63	31
11/02			53		29				70		45
11/03			41						61		31
11/04	20		19	14	8	44	22		26		18
11/05			13						21		16
11/06		24	37						45		24
11/07	22	24	39	25	12	83	25	24	40	43	31
11/08		23	21						41		28
11/09		10	11						11		11
11/10	12	11	11	9	6	37	11		20		19
11/11		14	15						18		16
11/12		10	10						5		10
11/13	6	12			7				18	17	12
11/14						31			19		16
11/15											28
11/16											
11/17											
11/18											
11/19											
11/20											
11/21											
11/22											
11/23											
11/24											
11/25											
11/26											
11/27											
11/28											
11/29											
11/30											
Arith Mean	17	16	25	18	13	51	20	21	33	41	22
Max 24-hr Avg	28	24	53	25	29	83	25	24	70	63	45
Std. Dev	9	7	14	7	10	21	6	4	21	23	10
Days of Data	5	8	12	4	5	5	4	2	14	3	15
Days >150											
Yearly Avg	24	22	25	21	19	34	22	20	41	42	25